

TEN YEARS IN SOUTH AMERICA

Notes of Travel in

Perú, Bolivia, Chile, Argentine Republic,

MONTEVIDEO AND BRAZIL,

COMPRISING

History, Commercial Statistics, Climate, Products, &c.

BY

BENJAMIN S. DINGMAN.

PART SECOND—BOLIVIA, COMPLETE IN ITSELF.

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ENTERED according to Act of Parliament of Canada, in the year of
our Lord one thousand eight hundred and seventy-six, by BENJAMIN S.
DINGMAN, in the office of the Minister of Agriculture.

TO THE READER.

The author has the satisfaction of laying before you the Second Part of his work on South America, entitled "BOLIVIA," which, for its Political, Geological and Commercial Statistics, will be found of great value to the Politician, the Merchant, the Geologist, the Chemist, and the public generally, as no pains have been spared to make it as near a complete history of that important country as possible. It will be of inestimable worth as a school-book and general book of reference of Bolivia, as it not only gives an extensive history of the Mineral, Animal and Vegetable Kingdoms, but also the political arrangement of the nation, with its cities, populations, and the manners and customs of its inhabitants.

Bolivia is, without doubt, one of Nature's most favored countries. Situated in the centre of South America, it occupies an immense territorial extension embracing different zones, which produce the fruits of all climates, from the Barley and Potato, which are raised in the snowy region, to the Quina and Sugar-cane, which are only produced under the tropical sun.

Everything in that country foretells a splendid future, to be realized when industry, labor and capital shall combine to develop its resources and make use of the treasures of her rich and fertile soil and varied climates.

In all her mountains, numerous veins of the most valuable mineral ores are found, and whenever they have been even partially and unscientifically worked, the most brilliant results have followed.

But the Mineral Kingdom is not the only one in which Bolivia is profusely rich. The Animal and Vegetable Kingdoms are equally so, and are prolific in the extreme.

Those immense plains where eternal summer reigns, and where the harvests succeed each other without interruption, are found crossed by navigable rivers, which will be, perhaps in times not far distant, the course through which the commerce of Bolivia will conduct her natural products, to leave them in foreign markets in exchange for manufactured goods.

The author traversed the country from end to end, and, with a view to publish this work in Spanish, gathered the statistical notes and territorial divisions from the most authentic sources in the various capitals, and consequently they may be considered as exact in every particular. As regards the climates, soil, &c., he speaks from personal observation, and an experience of several years in the Republic.

Should the present work meet with the approbation of a discerning public, it will stimulate the author to proceed with the publication of his travels in the other South American nations, the histories and commercial statistics of which are of no less importance to the mercantile world.

B. S. D.

Montreal, July 5th, 1876.

BOLIVIA.

For delicious Fruits and lovely Flowers,
Fertile Valleys and charming Bowers,
Bolivia is the land ;
Her mountains, filled with precious ore,
Offer the riches there in store.
To each and every hand.

Her Climate, Products, all combine
To show that it was Heaven's design
To make her truly blest ;
But Revolution's constant scourge
Keeps her close to Ruin's verge
And never lets her rest.

—B. S. D

CHAPTER I.

DISCOVERY OF "CARACOL" SILVER MINES—FOSSILS
PRINCIPAL MINES—ROAD FROM ANTOFAGASTA TO
CARACOL—THE AUTHOR IS IN THE MINES—DRINK
SALT WATER—LARGE CHILIAN COMPANIES—IM-
MENSE FORTUNES MADE.

In 1870 the great silver mines called "*Caracoles*" were discovered in the Desert of Atacama, by José Diaz Gana, upon whom fortune very justly smiled, as his fatigues, his continued explorations, his innumerable

voyages in that sea of sand which is called a desert, have been the means of opening an extensive horizon to the capital and industry of Bolivia and Chile.

In one of the many articles, which have been published in the daily papers, I find the antecedents and history of the discovery.

It appears that Diaz Gana, not being satisfied with the result of his explorations on the borders of the desert, sent a part of his company to the interior to explore some mountains, where he had reasons to believe should be found some rich veins of ore.

Saavedra, Mendez, (vulgarly called *Cangallas*,) Porras and Reyes, who took with them the animals and supplies of the caravan, arrived at the table-land which serves as the base of those beautiful grey mountains. While the three first masticated their *charqui* (dried meat), and prepared to separate in different directions, Reyes, who had finished his first, went climbing up the easy slope and picked up loose pieces of silver where are now the *Merceditas* and *Deseada* mines, and followed on southward picking them up in different directions, not knowing their value, but thinking possibly they might be of service. Later on, he joined Mendez and the others, who had also found loose pieces of ore, and had made marks in the lead with their knives.

Two of them immediately started for the coast to inform their *patron*. They had been to Diaz Gana what Sancho Mundo was to Columbus. The discovery was made, and that dry and solitary desert, a

short time after, was the centre of an active population.

Diaz Gana baptized that emporium of riches with the name of "*Caracoles*," and he was right. He had seen and found there the *amonitas*, the *trigonias*, the *griypheas striatas*, the *aviculas* of unequal *valvas*, the *astreas*, that characterize the *lias* ; and, as a "matter of fact" man, he fixed upon this notable geological formation to give a name to his discovery,

The angle formed by the two ranges of mountains forms a plain slightly undulated, with a western declivity, and intersected with drains of ancient fluvial inundations that carried with them stones mixed with *oolitasis*, fossil petrifications. But the principal fossilous deposits were found in the undulations of the dark-grey surface of the plain. The *amonitas*, and other shells of the *lias*, are found sometimes separately, but commonly encased in stones of a round, oblong or oval form, which on being opened show the fossil in its natural shape, size, form and color. It appears as if the shellfish had been deposited in exceedingly fine sediment, which concreted and assumed its form in the dryness which succeeded the abandonment of the sea's waters, and was afterwards petrified by the action of volcanic fire. Among the fossils, also, are found *oolitas*, or oval petrifications, of all sizes up to that of an ostrich's egg ; opened, some of them are hollow and filled with an Iron-ochre powder, with fine threads of the metal running through it, which also happens in the

bivalva, while others are wholly petrified; and, besides, there are many that inside of the outer shell have the Iron-ochre enclosing an almond or *oolita* petrified, and of the same nature as the exterior petrification. These petrifications at first sight appear to be of granite, and to have been amassed from the three granite crystallizations; but by a simple experiment it is at once discovered that the grey mass is chalky, or more technically, is *dolomia*, and that the shell itself therein encased is dolomified, and the *oolitas* likewise.

As regards the *oolitas*, which are of a chalky and ferruginous composition, like all the rest, it is not to be believed that they have their origin in a little egg deposited by a large fly, analogous to the one observed by M. Vislet at the Tezcuco lake, and augmented by the chalky concretions, according to his opinion founded upon the observations made there, and thus surmise an origin for the *oolitas*. If that was the case, those beautiful ones found at *Caracoles* could not have the large hollow filled with ochre or *olomizado*. The irregular distribution of the *oolitas* and fossils in that plain is the work of the furious rushing of the waters which in ancient times perturbed the surface of the *lias* and the great *oolita* deposits.

The young Chilian, Francisco Bascunan Alvarez, is another of those untiring explorers that has helped to convert the Desert into a field of labor and industry.

After long and laborious explorations, begun in *Copiapó*, *Bolivia* and *Catamarca*, in 1857, he returned again to the Desert in 1870 and discovered, in *Caracoles*, the group called the *Isla* (island), on account of its topographical position.

Later on, in company of another Chilian of acknowledged probity, Justo Peña, he began the explorations to find a road that would afford an economical and commodious outlet to the rich mineral deposits discovered in *Caracoles*.

Notwithstanding all the toil and penury that they were obliged to endure, to them was allotted the fortune of having discovered and explored the way that leads to the port of *Antofagasta*, and which is, without any doubt, the most commodious and best of any that are actually used in communicating between the coast and *Caracoles*.

From *Antofagasta* to *Caracoles* there is a distance of forty-six leagues (138 miles), constantly ascending, about thirty leagues of which are through a ravine which was easily converted into a wide and commodious road. The whole way from the port to the mines is through the Desert, which appears to have been once the bottom of the sea, and not a particle of vegetation nor any living insect, bird or beast is ever seen upon it. The natural advantages of this road make it preferable to the others for traffic, and the numerous caravans of mule-waggons that actually throng it carry their cargoes at a lower freight than

they do upon the roads leading to other ports from *Caracoles*.

In 1871 the writer was among the "silver hunters" at *Caracoles*, and although more than a year had passed since the discovery of the mines, and thousands of people then were scattered everywhere over the hills, and a village called the *Plazilla* formed for mercantile pursuits, still the privations were such that only persons of the strongest constitutions could resist, and the majority of those who came soon succumbed. Fresh water was not to be had, all the water was similar to sea-water, which was procured by sinking wells; and its use invariably purged the new-comer for ten or fifteen days, but, if he survived the ordeal, he would then enjoy good health and like the water better than fresh water.

The mines are from 10,000 to 15,000 feet above the level of the sea, and among the richest may be noted the *Deseada*, *Merceditas*, *Flor del Desierto*, *Esperanza*, *San José* and *Esmeralda*. Then there is the *Federico Errasuriz*, *Sud America*, *Salvadora* and a host of others, some of them of great promise, and others worth but little, and many worth nothing. On the 1st of May, 1872, there were over 25,000 mines (or claims) registered in the Government office at the *Plazilla* in *Caracoles*.

In the *Isla* group of mines the *Andacollo* was then the richest, and was noted for its abundance of valuable ore. Besides this, there was the *San Rafael* and a portion of others too numerous to mention.

The *Deseada* mine was the one discovered by the explorer José Diaz Gana, the discoverer of *Caracoles* already mentioned, and he sold it to a company formed for that purpose in Chile for *one million and a half dollars* cash in his hand. In July, 1872, this mine was sending *monthly* to the port for shipment *fifteen hundred tons* of the most valuable silver ore in *Caracoles*.

The experiments made by men of science resulted in the encouragement of all kinds of enterprises, and *Caracoles* soon became an immense field of speculators, disposing of large capitals. The merchants of Chile, both native and foreign, were the founders of these companies, the stock of which was sold at fabulous premiums.

In *Caracoles* fortunes were made in a day, and not of those insignificant ones either, but of millions. But in this, as well as in other pursuits of life, all cannot have the same luck, and thousands went there only to bury their fortunes, and their bones also, in the vain search for the hidden treasures.

CHAPTER II.

ANTOFAGASTA—POPULATION—COMMERCIAL IMPORTANCE—FLIES AND FLEAS—THE ENGLISH COMPANY'S MONOPOLY—TRAVEL OVER THE DESERT—WATER STATIONS—COPPER MINES—SALT MOUNTAIN—PECULIARITIES OF THE DESERT—"WAR OF THE ELEMENTS."

Antofagasta, the principal outlet for the mineral ore from the *Caracoles* mines, is a town (or was in 1872) of about 15,000 inhabitants, principally Chilians and Bolivians, and situated on the coast of the Desert of Atacama. It owes its origin to the discovery of *Caracoles*, at which time it only had two or three houses, and went by the name of *La Chimba*.

Now it has two branches of different banks, established there with the principal object of furnishing money to the mining companies, buying the ore and shipping it to Europe, and also for the accommodation of the mercantile community. Numerous large wholesale and retail houses, who do a very profitable business with the miners constantly, four large steam sea-water distilleries, and a large active business population devoted to all branches of trade and industry.

The situation of the town, and nature of the surroundings, is the grand obstacle to its permanent prosperity, and it will continue to flourish as long as

the silver stream continues to pass through it from *Caracoles*, and not a day longer, because it is "built upon the sand." A narrow strip of sandy plain separates it from the mountains in the rear, through which passes the road to the mines. The town is located on an immense sand bank on the sea-shore, and nearly on a level with the sea, and every step one takes in the streets is nearly ankle-deep in the sand, and add to this the boiling heat and glare which the white sand gives to the tropical sun, and some idea may be formed of the out-door life. But the in-door life is, if possible, still worse; the flies are the torment of one's life, you are compelled to be constantly brushing them from your face, hands and clothes, or they will "spot" you all over, and bite with a vengeance; at meals, you never get a plate of anything without more or less flies for "seasoning," and while eating they often enter your mouth by lighting on the morsel "between the plate and the lip," if care is not taken to prevent them, although there is always a servant stationed at the table with a large ostrich feather duster in hand for the sole purpose of *protecting* the guests from these annoyances. Fleas are another of the *products*, and are as numerous as the sands on the sea-shore; the streets are full of them, the houses and beds are full of them, and there is no rest to be had either day or night. For those two articles, *Antofagasta* beats the world.

After suffering a while in *Antofagasta*, one is glad

to change the "fresh" fare of the port for the "salt" of the mines, for there, at least, these insects cannot live. There is none of them in *Caracoles*. Although one leaves the coast covered with those animals, after ascending six or eight leagues in the interior, there is not a live one to be found. The air is bad for them, it appears, and it really does one good to take revenge on them by wholesale.

Three leagues from the port, on the opposite side of the range of mountains and on the road to *Caracoles*, is situated the saltpetre works of the *Compania Inglesa* (English company). They have extensive buildings, with a powerful steam engine constantly at work, and monopolise the trade in the Republic. Many years ago they procured from the Bolivian government the exclusive privilege, for a long term of years, of manufacturing the article in the Desert of Atacama, consequently they enjoy their monopoly to the prejudice of the Government and the public generally, as there is an abundance of the raw material there for an unlimited number of manufactories for an age to come. At the time of the discovery of *Caracoles*, their's were the only buildings in the port where now is situated *Antofagasta*.

The travel over the Desert to the mines is either on mule, waggon or carriage, these last having been only recently put on the road, and the time occupied on the trip is as follows, travelling night and day, with only short resting spells: Waggon, five days;

carriage, two days, and on mule-back the same. The down trip is made in from two to three days with the waggons when loaded, and on a mule or in carriage in about a day and a half.

There are three resting stations on the road, where barley and water is to be had for the animals, at a dollar for each ordinary pailful of water (and a proportionately high price for the barley), and each mule has to have at least three pailfuls at each station. Everybody (in 1871) carried his own provisions, and on arriving at the "feeding" place immediately sought the shade of the ranch, ordered a cup of tea and proceeded to lunch; but the poor *ranchero* would watch with such devouring eyes that he was always invited, and in that way lived upon his visitors, as he had nothing himself to eat, but never failed to collect his *seis reales* (seventy-five cents) for each cup of tea. The first station from *Antofagasta* is *Mantas Blancas*, distant nine leagues; the second, *Las Salinas*, fourteen leagues from the latter; and the third, *Punta Negra*, ten leagues further on. In 1872, there was a place where eatables could be obtained and a night's lodging also, in each of those three stopping places.

Mantas Blancas, or "white blankets," is so called from its situation being in the vicinity of mountains with tops and sides of a remarkably white color. Its situation (the ranch) is in the deep bed of an ancient water-course, but now completely dry, and the high embankment which rises up on one side

serves as some protection against the furious winds of the Desert.

At *Las Salinas*, there were ultimately three steam water-distilleries in operation, owned by different companies, for the manufacture of fresh water for the mule trains, and a little settlement formed, composed of the mechanics employed in the distilleries, and their families, and also a store where the principal articles of necessity were sold at "golden prices." The place takes its name from the springs of salt water which are there, *Las Salinas* signifying "the salts." It is situated in a deep ravine, that appears to have been the bed of a river in ancient times, and pools of water are to be seen by the road side, with thick incrustations of salt all around the borders.

Punta Negra means "black point," and derives its name from a mountain at the base of which it is located, and which, as seen in the distance, appears to have a black summit. The ranches here are made by fixing four upright posts in the ground, and forming a covering of old sacks sown together, which, when stretched over the posts, form the roof and close the sides; as it never rains in the Desert, the only object is to form a covering from the sun's burning rays, and for that purpose the old bags are amply sufficient.

Among the hills a few miles distant from *Punta Negra*, at a place called the *Rebosadero*, are immense mines of copper ore, which, although the richest in the world, are completely abandoned because of the

utter impossibility of working them to advantage. The ore gives ninety-nine per cent. of pure copper, cannot be torn out by blasting, but only with hammer and chisel and in little pieces, and consequently "costs more than it comes to,"—that is, the labor costs more than the product. Should there ever be discovered an invention for blasting those pure copper hills, thus economizing the cost of their working as in other mines, their riches would soon astonish the world.

In *Caracoles* there is a mountain of pure solid crystallized salt, technically called *Sal Gema* (Marine Salt), and blocks are taken out weighing a hundred pounds. A piece of this size was exhibited at the National Exhibition of Arts and Agriculture in *Santiago de Chile* in 1872, and it was as transparent as a piece of crystal. Chemical analyses declare it to be much preferable for consumption to that now in use, as it contains some properties of the sea-water which are very conducive to health, besides all the good qualities of the common article. But the freight to the coast is much more than the value of salt, and consequently it can only be used as a curiosity till such times as a railroad from the port to the mines, with a low rate of freight charges, will permit its extraction for consumption.

Many are the peculiarities of the Desert of Atacama, some of the most notable of which are, as already mentioned, its complete barrenness and destitution of the least kind of vegetable or animal life. The

wind rises with the sun daily, and increases in force until at midday when it blows a complete hurricane, sometimes overturning trains of empty waggons, and carrying with it a fearful storm of sand blinding to both man and beast; then it gradually loses its force with the sun, and at sundown there is generally a dead calm. The extreme lightness and dryness of the atmosphere makes decomposition of animal matter impossible, and the animals that die on the road to *Caracoles* retain a perfect state of preservation, time only tending to gradually harden the form in its course towards final petrification; the drivers of trains, as they pass along, stand the dead mules on their feet in the sand, and at a short distance one is often deceived by their natural appearance to think them live animals.

There is never a cloudy day in the Desert, except in the months of June, July and August, which is the winter season, and then the mountains of *Caracoles* are the scene of the most frightful "war of the elements." The echoes repeat the deafening peals of thunder, while the vivid flashes of lightning keep the dark overhanging clouds in a flame, and the hurricane sweeps everything before it, sometimes accompanied with hailstones as large as a pigeon's egg. The writer saw at one time a frame house that was just being completed, and which was situated on the side of a mountain, that during one of these storms was carried more than half a mile to the bottom of a ravine and dashed to a thousand pieces.

The tornado also brings with it the most terrific whirlwinds that are experienced in any part of the world; they often cover a space of fifteen or twenty acres at the base, and with a force that raises rocks, stones, mules, waggons and individuals into the air if they are found in its path.

CHAPTER III.

THE AUTHOR SAILS FOR MEJILLONES—IS CARRIED TO COBIJA BY MISTAKE—DETESTABLE HOTEL IN COBIJA—SITUATION OF COBIJA—POPULATION—CUSTOM HOUSE STATISTICS OF IMPORTS AND EXPORTS—THE AUTHOR SAILS AGAIN FOR MEJILLONES.

The inauguration of the works on the railroad, which is to extend from *Mejillones de Bolivia* to *Caracoles* mines, and the laying of the foundation stone of its buildings at the seaport, was celebrated on the 30th day of January, 1873. To that end, numerous printed invitations were sent to persons at a distance, a month or so previous, by the courteous Managing Director, José Manuel Braun, and the writer was one of the recipients of the official notice, but its gratification cost him pretty dearly, as the result will show.

I arrived at *Mejillones* on the steamer at about 9 o'clock at night, and as it was very dark I concluded

to remain on board till morning, as the Captain assured me he had several lanches of cargo to discharge in the morning, before continuing his voyage. With this understanding, I retired to my stateroom to sleep at about 10 o'clock, but was awoke by the motion of the steamer towards morning, and hurrying on deck to ascertain the cause found that we were at sea, out of sight of land, and steaming North at full-speed! My feelings can be better imagined than described. The Captain was thunder-struck on seeing me still on board, begged of me a thousand pardons, and soon told me how it happened. He said that about 11 o'clock the moon came out bright, the lanches came alongside for the cargo, which he at once discharged, and, forgetting all about my being on board, raised anchor and put to sea.

The next stopping place for the steamer was *Cobija*, and thither I was now obliged to go or jump overboard, so I chose the former unhesitatingly. We arrived there about 8 o'clock the same day. There would be no return steamer passing for four days; and I took up my quarters in the *Hotel Caracoles*, which was recommended to me as the best hotel in the town, and maybe it was, but I found it to be the most filthy and in every way the most detestable place I ever saw bearing the name. The fleas and bedbugs were mutual occupants of the bed, and, presuming upon their right of possession, made war upon the trespasser incessantly and with a vengeance.

the live-long night. The rats, in the meantime, held general assemblies in the room, and went through their gymnastic exercises in trying to jump over the bed, but always fell short, sometimes dropping on my head, face and every part of the bed, and then some of them would have a "pitch" battle among themselves for variety sake, and in that way they always kept up the amusement till morning.

Cobija is situated on the Desert coast, a narrow barren plain separating it from the lofty ridge of mountains extending from North to South, in its rear, and a high rocky point runs about a mile out into the sea and forms the little harbour or bay. Previous to the discovery of *Caracoles* this was a place of considerable commercial importance, it being the only port of entry for the whole Republic, and at the same time the exportation of copper ore from the numerous mines in the vicinity was carried on with activity. But now other ports are opened on the Bolivian coast, half of its population have emigrated to the *Caracoles* mines, only one or two of its many copper mines are working, all the laborers having deserted them for the greater inducements offered in *Caracoles*, and consequently a general paralyzation of trade prevails. It was a place of some five or six thousand inhabitants, but not now. It is, notwithstanding, the capital of the Department of Atacama.

But to show its former greatness, and also the nature and value of the nation's exports, I give here

the Custom House movements as I have copied them from official reports :

Collected at the *Cobija* Custom House, for import and export duties, from 1852 to 1861 :

YEARS.	BOLIVIAN DOLLARS.
1852.....	44,988 1 rial.
1853.....	23,595 6 " "
1854.....	192,574 6 " "
1855.....	171,153 4 " "
1856.....	136,273 3 " "
1857.....	86,682 5 " "
1858.....	87,122 4 " "
1859.....	109,498 5 " "
1860.....	108,214 5 " "
1861.....	104,153 4 " "

(A Bolivian Dollar is 80 cents.)

\$1,084,257 6 rials.

From the several amounts produced by the *Cobija* Custom House in ten years, it is seen that they amount only to one million sixty-four thousand two hundred and fifty-seven dollars and six rials. Dividing this sum in *pro rata*, the medium corresponding to each year is one hundred and six thousand four hundred and twenty-five dollars and six rials.

Now, then, the importation of merchandise, which is at least two millions of dollars, and still without considering the roadway duties upon at least five hundred thousand dollars to the Argentine Republic, and limiting to a million and a half dollars which is the least amount yearly imported for the towns of Southern Bolivia, it will be seen that at the rate of twelve per cent. duty, which is the medium collected, according to the regulations, the merchandise imported should produce \$420,000 annually.

From the general receipts that office has had from 1865 to 1870, it is seen that the total rent for the period of six years was \$956,146.47½, Bolivian money, which gives a medium annual product of \$159,367.79.

Exportation of products in the year 1864:

MERCHANDISE.	QUANTITY.	CLASS.	VALUE.
Copper in bars.....	7,000	Quintals	\$ 140,000
Do in ingots.....	38,144	do	305,152
Do in ore.....	393,010	do	911,998
Tin.....	2,091	do	46,013
Borax.....	100	do	800
Guano.....	6,188	Tons	74,256
Hides.....	150	—	750
Chinchilla skins.....	492	Dozens	3,444
Specie.....			1,057,543

Total..... \$2,539,956

Exportation of Copper in ingots and ore from the Bolivian coast from the 21st of December, 1863, to the 5th of January, 1865:

DESTINATION.	ORE.	INGOTS.	CLASS.
Liverpool.....	147,608	27,016	Quintals.
Swansen.....	68,294	10,728	Do.
Coquimbo.....	134,379		Do.
Guayacan.....	33,328		Do.
Lota.....	10,341		Do.
Total.....	393,959	37,744	

Exportation from Bolivia to Perú in the year 1867:

MERCHANDISE.	QUANTITY.	CLASS.	VALUE.
Silver in bars.....	104,326	Marks	\$1,304,086
Gold Dust.....	6,789	Ounces	149,538
Silver-ware.....	3,676	Marks	35,140
Copper in bars.....	98,753	Quintals	1,451,494
Tin.....	964	do.	13,504
Cobalt.....	387	do.	3,870
Cascarilla Bark.....	18,635	do.	1,121,255
Alapaca Wool.....	1,362	do.	85,720
Sheep's do.	4,136	do.	124,080
Chinchilla Skins.....	4,800	Dozens	33,504

Total.....\$4,322,191

The foregoing tables, showing some of the valuable products of Bolivia, will recommend themselves to the reader.

But everything in this world has an end, as the saying goes, and so had my stay at *Cobija*. The four days finally passed with their respective nights of torment, and the steamer, to my great joy, at last made her appearance. Here again another inconvenience presented itself. The steamer was not one of the regular "calling" ones at *Cobija*, and only "laid to" off the port without coming to the anchorage, which made it impossible for me to get my baggage on board, so I took a receipt from the landlord of the hotel for my two trunks (ordering him to forward them to me by first steamer), and with my valise in hand managed to reach the steamer just in time. The same evening I went on shore at *Mejillones*.

CHAPTER IV.

HARBOUR OF MEJILLONES—TOWN—POPULATION—
WHALES, PORPOISES AND SEALS—FINE BATHS—
ANALYSIS OF THE GUANO—GUANO EXPORTS.

The harbour of *Mejillones* is one of the largest and best in the world. Thousands of ships could anchor commodiously in the bay, the waters of which never are affected by the furies of the sea without, and,

though the most terrific storms prevail on the "raging main," not a wave disturbs its placid surface. On the South side, it is protected by an immense promontory of lofty mountains which extend many miles into the sea, and on the tops of which are the Guano Deposits, an active field of operations for the Company engaged in its export; at the foot of the mountain, on the bay, they have extensive warehouses and wharves, where are always to be found vessels at anchor, some waiting for and others engaged taking in their cargoes of Guano.

The town of *Mejillones*, which is a place of some four thousand inhabitants, did not exist prior to the discovery of the *Caracoles* mines, and was only founded when the Government of Bolivia, about the same time, accorded the contract for building a railroad from thence to the diggings. It is situated on the bank of the Desert of Atacama, on an immense open plain, and about sixty feet above the level of the sea.

The tranquil bay has been for such a short time disturbed by the traffic of ships, that the monsters of the deep have not left off their custom of coming to bask in its pacific waters, and daily can be seen the whales spouting the water into the air, the porpoises running races near the shore, and numbers of large seals (*Lobo-marino*) swimming about or sunning themselves stretched out upon the sand. One day I saw a fight in the water between two mastiff dogs and a seal, which lasted about fifteen minutes, but

the seal escaped by diving into the water and returning to the surface a long distance away; he had tried the dodge several times before, but the dogs always managed to catch him when he came up, but he had such a loose skin that they couldn't hold him. I was told that whales have been known to get "aground" near the shore, the tide leaving them, and they remain "kicking about" on the sand until the tide came in again to float them off.

Notwithstanding my trip to *Cobija*, I arrived here a few days before the inauguration should take place, and amused myself in the meantime by climbing the mountains to visit the Guano deposits, and by taking a swim twice a day in the smooth crystalline waters of the bay. A more enchantingly lovely bathing place cannot be found on the coast, if indeed there is a better one anywhere else, which I doubt.

The Guano of *Mejillones* exists in different layers on top of each other. The greater part of these layers contain the sixty to sixty-five per cent. of *phosphate of lime* which is required to make it saleable, and some of the layers contain, besides their greater richness in phosphate of lime, ammoniac salts, which raises their price to a par with the Guano of Perú.

The comparative solution of the substances which compose the composition of the Guano of Bolivia and Perú, taken from the laboratories, where it has been tested by competent persons, is the following:

GUANO OF PERÚ.

Water.....	10	per cent.
Volatile organic substances.....	5	"
Phosphate of Lime.....	72	"
Silice and other insolvable substances.....	1	"
Ammoniac.....	12	"
	100	"

GUANO OF BOLIVIA.

Water.....	10	per cent.
Volatile organic substances.....	9	"
Phosphate of Lime.....	77	"
Silice and other insolvable substances.....	3	"
Ammoniac (sometimes).....	$\frac{1}{2}$	"
	99 $\frac{1}{2}$	"

The superiority of the Peruvian Guano, as shown, only consists in the greater quantity of Ammoniacal basis which it contains; but it will not be doubted, neither, that the Bolivian Guano will have an equal, if not greater, quantity of that receipt, if it is taken into consideration that at a greater depth the ammoniac will not have been dissolved, on account of the absence of atmospheric humidity.

From October, 1867, to May, 1868, the exportation was 10,289 tons, the value of which appears to be \$51,445.25.

From September, 1870, to March, 1871, there has been exported 26,615 tons from *Mejillones*, on account of the contract of sale celebrated by the government with Henry Meiggs, Esq.

CHAPTER V.

THE LANDLORD FROM COBIJA ARRIVES —WRITES FOR THE TRUNKS—INAUGURATION OF THE RAILROAD —BANQUET AND BALL—THE AUTHOR HAS HIS POCKET PICKED WHILE DANCING.

Just before the day of celebration, who should make his appearance among the arrivals but the hotel keeper from *Cobija*, in whose house I did four days' penance, and with whom I left my trunks. I at once hastened to meet him, supposing that he had brought me my baggage, according to agreement, but to my surprise he told me that he had forgotten it. At my request, he wrote for it to be forwarded by return steamer, and I had no alternative but to wait for it a few days longer.

Several hundred persons had arrived from different points up and down the coast to participate in the feasts of the inauguration, and the last steamer brought a brass band to enliven the proceedings, and give "tone" to the occasion.

Preparations were made for a banquet to take place immediately after the solemnization services, and a large tent was erected for that purpose and profusely decorated with flags, mottoes and flowers—the flowers were brought from a neighboring port in Chile, as nothing grows from the earth in this country, except flies.

The long looked-for day arrived, and at about one o'clock the railroad company's steam tug-boat came puffing over from the Guano wharves, having on board the Manager and staff, and this was the signal for everybody to get into the public small boats lying at our wharf, when they were taken in tow by the steamer, and conducted about a mile down the coast of the bay. Here we all disembarked, and a few hundred yards from the shore a temporary "sunshade" was erected at the place which was to be the scene of action. A priest had been provided for the occasion, and with all due solemnity the corner stone of the company's railroad buildings was laid, and we made a "quick return" to enjoy the second part of the feast. •

The tables were loaded with the choicest in eatables and drinkables, to which we all as "of one accord" did ample justice, and the surrounding exhilarating influences "drove dull care away" from everybody. Toasts were drunk in sparkling champagne for the happy installation of the great railroad enterprise which we were celebrating, for its more happy and speedy termination, for the Directors, Manager, engineers, and everybody else, and the corresponding speeches made, and finally the party separated to meet a little later in the evening at the ball which was to wind up the festival. We had only been about two and a half hours at the table.

After being about an hour in the dance, and having "tipped the light fantastic toe" only twice, I found

it most suffocatingly warm in the room on account of the large crowd present, and in company of two acquaintances retired from the assembly. On our way to the hotel, I invited my companions into a saloon to take some refreshment, which we did, but on feeling in my pockets for money to pay for it found myself without a cent. My pocket had been picked of *one hundred and eighteen dollars* in bank bills, which I carried in the inside breast-pocket of my coat, and I could not account for its loss, as I invariably kept my coat buttoned up, unless the sleight-of-hand performance was done by one of the women while in the act of dancing with me. We returned to the dance and search was made, but without success, and thus ended the Railroad Inauguration feasts, leaving me "a sadder" if not "a wiser" man.

CHAPTER VI.

THE AUTHOR'S TRUNKS ARRIVE FROM COBIJA—ONE OF THE TRUNKS BROKEN OPEN AND ROBBED—THE LANDLORD ORDERED TO PAY THE LOSS—IS GIVEN EIGHT DAYS—THE AUTHOR EMBARKS ON THE STEAMER AND IS TAKEN OFF BY FORCE.

A day or two after the foregoing transpired, the steamer arrived with my trunks, and the landlord of the *Cobija* hotel and I went on board together to receive them. We found them on deck, and I at once observed that one of them had been broken open, and called the attention of the Purser and Steward to the fact, and they declared before us that it was received on board by them in that very condition at *Cobija*. The trunks were labelled to the Captain of the Port, and we forthwith conducted them to the office of that functionary, to whom I referred what had occurred on board, telling him that I feared that the trunk had been robbed. It was then about dark, and the Captain of the Port advised me to leave the trunks in his office, return the next morning and make an examination of the trunk before him, and then he would see who was the responsible party.

The next morning I went to the office, and, in the presence of the Captain of the Port, overhauled the trunk, finding, as I feared, that it had been robbed of many valuables.

I showed my receipt to the official, and he at once said that the landlord of the hotel was responsible to me, and told me to make a list of the articles lost and their value, while he sent for him to come to the office.

The value of the things missing amounted to one hundred and twelve dollars.

The landlord soon made his appearance, and the Captain of the Port told him that he would have to pay me for the loss I had sustained, but said that it was a question that belonged to the jurisdiction of the *Intendente* (mayor), and thither we went, trunks and all.

The *Intendente* also confirmed the sentence, and then referred me to the *Sub-Prefecto*, as the highest authority in the place.

The whole case was again argued over in presence of the *Sub-Prefecto*, resulting in another victory for me, and the landlord then asked for eight days' time to write home to *Cobija*, alleging that he was without funds sufficient for the payment. The *Sub-Prefecto* conceded him the eight days, notwithstanding my protest against it, and I thought the matter already settled, and that my only loss would be the eight days' hotel bill while waiting to be paid, but as yet I little knew about the "justice" in Bolivia, as the result will show.

The next day I was told that the landlord had gone to *Cobija*, and I at once informed the *Intendente* of the fact, when I was surprised to find that he

knew it and had himself given him permission to go, on the condition of returning by first steamer. But the steamer came without him.

When the eight days were expired, the landlord had not returned, and on complaining to the *Intendente*, all the satisfaction he gave me was "maybe he'll come on the next steamer." I told him that I could not wait for him any longer, that I would take passage on the steamer that would arrive that evening, and at the same time leave a power of attorney with a person I named to receive the money for me. He replied that it was all satisfactory, and I bade him good-bye.

Now comes the interesting part of the story.

The steamer came in about sun-down, and I immediately went on board, after having first left a power of attorney with an acquaintance to attend to my collection from the *Cobija* landlord, and at about 10 o'clock I retired to my berth. The steamer was still taking in cargo.

I had just fallen asleep, when I was awoke by the purser with—

"Is your name Dingman?"

"I believe it is," was my answer.

"Get up, then, for you've got to go ashore—the Captain of the Port has sent an order for your arrest," he continued.

"For my arrest? impossible!" said I, as I seated myself in the berth.

"Read for yourself," and he handed me a large sheet of paper bearing the Bolivian arms, which in fact was signed by the Captain of the Port, and commanded me to present myself immediately in his office.

"Is it not as I told you?" asked the Purser.

"Yes, but I don't understand what it means. He has nothing to do with me, nor I with him, and I am not going on shore to see him, at this hour, and lose my passage, I assure you."

The Purser then left me, and a few moments afterwards returned accompanied by an officer of the Captain of the Port's service and seven of his men. The officer, as soon as he saw me, addressed me—

"Don't you obey the order?"

"No, I don't," I replied with firmness, "I don't recognize the authority, and shall stay where I am."

In the meantime, I had partly dressed myself.

All this took place in the cabin, and the passengers hearing the loud talking, stuck their heads out of their staterooms to see what was going on, and many of them on seeing the officers and soldiers thought there must be some desperate character on board that required such a police force to capture him, and dressed themselves and came out in the saloon to see the result. I was truly "the observed of all observers."

"I have orders to use force, if you refuse to go," vociferated the official, and at the same time advanc-

ing towards me with two of his men, who were all armed.

"I will not go, and use force if you dare!" I shouted fiercely, and at the same time grasping my revolver I placed myself in the stateroom door.

They were rather taken by surprise, I think, for they withdrew a few steps, and ranged themselves on the opposite side of the cabin in a hostile attitude. There is no telling what would have happened, had not the captain of the steamer made his appearance at that moment.

He came directly to me and said that the authorities would not permit the vessel to sail with me on board, and that *I must* go on shore if he had to assist the Bolivians with his crew to eject me dead or alive from the steamer. I protested against the unprecedented outrage, that I was a British subject, that I had paid my passage, but it was all of no avail. The miserable Dutchman (the captain), who either did not know his duty, or, which is more probable, wished to gain favor with the authorities, took no notice of what I said, but called upon his officers to aid the police force.

It would have been madness for me to attempt to resist the combined forces, so I manifested my readiness to accompany the land force, and they immediately conducted me to their boat (which was alongside the steamer) bag and baggage.

CHAPTER VII.

THE. AUTHOR IS TAKEN TO THE CAPTAIN OF THE PORT'S OFFICE—INTERVIEW WITH THAT OFFICER—IS SENT TO PRISON—RELEASED THE NEXT MORNING—CAUSE OF ARREST AN INFAMOUS DOCUMENT—THE LANDLORD ARRIVES FROM COBIJA AND DENIES EVERYTHING—THE AUTHOR ORDERED TO PROVE HIS CASE OR PAY DAMAGES, AND IS COMPELLED TO LEAVE ONE TRUNK IN THE INTENDENTE'S OFFICE AS SECURITY.

It was about twelve o'clock at night when we reached the shore, and I was taken straight to the Captain of the Port's office, luggage and all. He was waiting my arrival, and on seeing him I asked (in as mild a tone as I could command under the circumstances)—

"By what right did you order me taken by force from on board the steamer?"

"I command here," he answered quickly.

"Am I a criminal that I should be outraged in that manner?" I shouted, already losing my self-control at the airs of importance which he assumed and the malicious look he gave me as he spoke.

"You have a suit instituted before me, and without my permission you can't go away," he replied, in a somewhat modified tone of voice, and began walking up and down in the room.

"I never had a suit before you," said I, emphatically, "it was begun before your predecessor and he put it into the hands of the *Intendente*, who decided it in my favor."

"The *Intendente* had nothing to do in the matter," he retorted hastily, "and I have just arrived in the steamer from *Cobija* to look into it."

"The *Intendente* accepted my attorney, to whom I gave legal power to settle this matter to-day. And, besides," I added, "if I choose to lose my money, I would like to know what business it is to you?"

"To me?" raising his voice and turning towards me, "am I not commander here? You laid a criminal charge against one of my countrymen, and now you must prove it."

"I tell you that the charge was proven before the *Intendente* and judgment given in my favor, as I said before," I responded in an angry tone of voice.

"It can't be possible," said he, and turned away to resume his walk.

"Why didn't you enquire into the matter before taking a step so prejudicial to my interests and so outrageous to my person?" I demanded of him in imperative tones.

"I enquire of nobody—I do what I like," was his sharp rejoinder.

"You may regret this, as I shall hold you responsible for damages," I said defiantly.

"Guard! take this man to prison!" he yelled at the top of his voice, and I was instantly seized and

conducted to the guard-house, where I passed the rest of the night meditating vengeance against Bolivia and Bolivians generally, and the Captain of the Port and the *Cobija* landlord particularly.

The next day I was released.

I then ascertained that the landlord had arrived from *Cobija* the previous night, in the company of the new Captain of the Port, who was a friend of his, and together they had concocted the plan of my arrest and imprisonment. The steamer they came on arrived an hour or so after the one in which I had embarked.

The same day the *Intendente* sent for me, and I hastened to his office. I had been several times before looking after him, to inform him of the night's proceedings, but he was always gone out. Now, on entering, I found him in company of the landlord and another thievish-looking individual that he took along with him as protector, as I afterwards ascertained, because he feared that the restless night I had passed might irritate me and that I would lay violent hands on him.

The *Intendente* disclaimed any knowledge of the outrage inflicted upon me the night before, and maintained that the Captain of the Port had no jurisdiction in the matter whatever, but supposed that he had been induced to prevent my leaving on the grounds of the new and important evidence which the defendant landlord had brought with him

from *Cobija*, and which he had shown to that official, who came on the same steamer with him.

I desired to know what the evidence could be that authorized such an abuse of authority, and was shown a certificate signed by some individual in *Cobija*, the purport of which was as follows :

" I hereby certify that the trunks were delivered by me on board of the steamer in *Cobija* in perfect condition, and that they were delivered in the same condition by the Purser in *Mejillones*, and that the charge made for robbery by Dingman is false and only made to extort money from the landlord."

What infamy! A person certifying to a thing that he could not know, not having accompanied the trunks to deliver them or see them delivered! And certifying to a base falsehood, as it was well known to all parties that the trunk was found broken open when received on board the steamer in *Mejillones*! Also calumniating me, a person whom he never saw or heard of before! And upon that evidence I had been dragged like a criminal from my bed, when outside of the Bolivian jurisdiction, at midnight! It appears impossible that such a barbarous act could occur in a country calling itself a Republic, and in this the 19th century. But it was only a simple example of the political corruption prevailing in the country, where justice is unknown, and where money and influence decide all the questions brought before the authorities.

I protested in the strongest terms against the

infamous document, at the same time explaining its open absurdity and nullity, but all to no effect. The defendant-landlord, who before had admitted before the *Intendente*, *Sub-Prefecto* and Captain of the Port that the trunk was received by us on board the steamer broken open, now had the barefacedness to deny it! But he dared not look at me and say it, and I branded him as a thief and a liar, to my satisfaction at least.

The *Intendente*, also, notwithstanding that he himself had previously condemned the landlord to pay me for my loss sustained, now sided with him, notifying me that I must either prove that the trunk was received here on board the steamer broken open, or I should have to pay damages to the defendant. Also, obliged me to leave one trunk in his office as collateral security, in case that I could not prove my allegations, and also to prevent my escaping, as he had the impudence to tell me to my face.

This extraordinary state of affairs compelled me to remain eight days longer, until that same steamer should arrive that brought the trunks, so that I could go on board and procure a certificate stating the state in which they were received and delivered, because now, as the landlord denied everything, that was my only resource for proof.

CHAPTER VIII.

TROUBLE WITH THE INTENDENTE — CERTIFICATE FROM THE STEAMER — THE AUTHOR CONTINUES HIS TRAVELS.

Three days passed without anything to disturb the monotony of every day life in a village like *Mejillones*, situated on the borders of the Desert, with only the sea in front, and barrenness and desolation on every side. I was anxiously waiting the arrival of the steamer, which was due within three days more, when, about 12 o'clock, I was sent for by the *Intendente*, and the moment I entered his office he said to me—

"Your trunk that you left in this office has been attached, and I wish you to make an inventory of its contents before me, so that you can't complain afterwards."

"Who made the attachment?" I demanded sharply.

"The landlord, for his expenses," he replied, drawling out the words, and offering me a chair, which I rejected.

"What expenses? I don't owe him a cent, you know that he owes me and I will not admit the attachment, nor anything of the kind," was my response, in angry tones and in a defiant manner.

"But you owe him the expenses he has been to," he added in a dry, doubtful tone, and barely glancing towards me.

"I don't owe him one cent!" I repeated, now entirely out of patience with the miserable, cunning rascal, and adding, "Is it not enough that I have been already robbed by him?"

"That is not decided yet," he added, in his usual idiotic manner, not taking any notice of the raging passion I was in.

"Not decided yet!" I cried at the top of my voice, and continued, "You yourself decided it and ordered its payment, but did not hesitate to retract your judgment on the presentation of a scurrilous and infamously lying certificate. I'll prove my words to you when the steamer arrives."

"It will all be settled on Tuesday," was his calm reply.

"With your permission, Mr. *Intendente*, I will retire," said I, as I turned to go out.

"Certainly," he answered, in a hesitating, unsatisfied tone, and a countenance perceptibly longer than when I came in.

I then thought that I would be permitted to tranquilly await the coming of the steamer, without any more of those annoying interviews, but I was mistaken. The day the steamer was due arrived, and she was expected at about sundown, but at three o'clock in the afternoon I again had a summons from the *Intendente*, and on presenting myself he greeted me with—

"You have got to pay the defendant-landlord his bill of expenses."

"I? I don't owe him anything, as you very well know, and he must pay me what he has robbed and *my* expenses, besides heavy damages," I replied with emphasis.

"That is another thing," was his measured rejoinder, "and you can proceed against him for it before the Judge of Instruction."

"Mr. *Intendente*, for God's sake," I answered in a pitying tone at seeing the utter imbecility of the man, "how can you say that it is *another thing* when you know that he is and has been detained here until he pays for the robbery."

"That has not been proved yet, and he has proved that the robbery was not effected in his house, and consequently you shall pay him instantly!" he shouted, with all the force he could, and at the same time rising from his chair, as if he thought to intimidate me with this sudden outburst of gas.

"I won't pay him one single cent, to save him from hell! I'll never submit to such injustice!" I cried, in a towering passion.

"Then you've got to make an inventory immediately of this trunk here," he remonstrated, still trying to maintain a show of authority, and pointing to it, "because it's attached."

"Mr. *Intendente*," said I, still unable to soften my words and in the same defiant attitude, "I have already told you the other day that I will not admit the attachment, neither will I make any inventory, and nobody has any right to demand it; when the

steamer arrives, I'll bring you a certificate that will prove the infamous rascality of this miserable thief," and I pointed to the landlord, who at that moment entered the room accompanied by his companion of the other day. They took their seats without venturing a word in reply to my salutation. I had from the first refused to be seated, and still remained standing.

"Notwithstanding," urged the *Intendente*, "you ought to make the inventory of the trunk's contents, so that you can't say anything afterwards."

"It appears, sir," I remarked inquiringly, "that you have forgotten the judgment you gave in my favor on seeing the broken trunk, and that also given by the *Sub Prefecto* in your presence?"

"No," he replied, "this is simply a preventive step."

"Then you doubt my honor?" I demanded quickly.

"No, sir, I don't doubt you," he answered, at the same time exchanging a significant glance with the defendant landlord.

"Then, sir," I continued, "have the goodness to tell me why you are pressing me so hard to-day to get possession of my money or the trunk's contents, when the steamer is momentarily expected that will give final testimony in the matter?" Although I repeated the question I got no reply, except a shrug of the shoulders and their mutual glances, so I bowed to the *Intendente* and returned to my hotel.

The steamer made her appearance just before dark, and having requested a couple of gentlemen at the hotel to accompany me as witnesses, in case of necessity, we repaired on board, where I procured the following document, signed by the Purser and Steward :

“ We certify that the baggage which came marked to Napoleon Tejada, and which was shipped on 3rd of this month at *Cobija*, one of the trunks was broken open *and in that condition was received on board in said port*, and *Mr. Dingman showed it to the hotel-keeper*, who stood by his side, when they came on board to receive them.

(“ Signed,) Month of February, 1873.

“ J. BARBER, Steward of Steamer ‘ Limari.’

“ FERRO, Purser of Steamer ‘ Limari.’ ”

That evening I ascertained that the defendant-landlord had left on the same steamer for *Cobija*. He made a timely flight.

The next morning I went early to see the *Intendente*, and found him still in bed, but I was at once admitted into his office which at the same time served him as a dormitory, he still remaining in bed and complaining of being unwell. I showed him the certificate, and he at once admitted that it was amply sufficient to make the landlord responsible; that I had already given proofs enough of the robbery, and that the bad faith of the defendant was apparent; but he was sorry that he could not order the payment

as my claim with the robbery, expenses and damage, ascended to an amount beyond his jurisdiction! adding, that the *Sub-Prefecto* (who was absent) was expected to return by the steamer which would arrive that night, and that he would order its immediate payment. He began complaining to me how poor he was, and with what difficulty he managed to live on his miserable salary. I understood him, and his eyes glistened when I assured him that if he would lend me his assistance to recover the money I would reward him handsomely, and he promised me everything, thinking, I suppose, that I was going to give him something in advance, but he was mistaken, for I had no such intention.

I informed him of the departure of the landlord, and he replied that he was aware of it, but that he had left a power of attorney with a person, who at the same time went his security for the result, and at my request he was sent for. He soon came, and I saw it was the same "ungodly"-looking individual that had accompanied the landlord previously. When I showed him the document, he merely shrugged his shoulders and said that the case would have to be carried to the Judge of Instruction, at *Antofagasta*, for decision, and proof brought to show who committed the robbery before payment could be ordered. The *Intendente* answered him, that my receipt signed by the defendant landlord in *Cobija*, and the certificate from the officers of the steamer were sufficient proofs. He now delivered me my trunk, and our conference ended.

The *Sub-Prefecto* did not arrive in the steamer, as expected, and I went to inform the *Intendente*, who answered me that he would be sure to come in the *next* steamer, and that he would immediately order me to be paid ; but he did not come, and in that way I passed more than a month waiting, until I saw the utter hopelessness of obtaining justice or any remuneration whatever, as I was put off from one day to another to wait the coming of this "mesiah" who never came. I was losing both time and money, so I left a power of attorney with a gentleman to recover my claim should the *Sub-Prefecto* ever arrive, and I resumed my trip to the interior, fully satisfied with my experience in the Bolivian administration of justice on the frontier.

CHAPTER IX.

RELIGION — RACE OF INHABITANTS — PRINCIPAL PRODUCTIONS — MEDICINAL — DYEING — FRUITS — TIMBER — HONEY BEES — PALM TREES.

The first article of the Constitution of Bolivia reads: "The State recognizes and sustains the Roman Catholic, Apostolic Religion; the public exercise of all other rites is prohibited." But, notwithstanding, the savage tribes of the East, and the Indians that live at long distances from any

settlement, where there are no parsons, missionaries, public schools, nor authority whatever, profess the ancient religion of the *Incas*, worship the Sun, are Manichees and idolaters. Superstition abounds everywhere.

Bolivia was populated by three different races : the Spanish, the aborigines, and that which results from the mixture of these two. The aborigine race has its origin enshrouded in mystery, but it is undoubtedly one of those that for its constitution, its moral and intellectual parts, is not exceeded by any other. The aborigines generally live in the Eastern forests, on the plains and on the mountains.

The Republic of Bolivia is one of the richest nations of the globe in productions of the vegetable kingdom. Her principal productions are :

Coca, *cascarilla* bark, coffee, *cacao*, tobacco, sugar-cane and rice. In the high mountains is raised wheat, barley, *quinua* and potatoes of different species, besides sixteen different classes of corn (clover grows spontaneously), and all the vegetables and fruits of Europe. Finally arriving at the deep valleys and vast plains, which extend towards the Atlantic, nature presents herself in all the luxury of tropical vegetation ; at each step will be found vineyards, *chirimoyas*, bananas, *yucas*, oranges, sweet potatoes, pea-nuts, potatoes, coffee, *cacao*, vanilla, almonds, and pine-apples ; the Bread-Fruit tree displays its brilliant palm-shaped leaves, and the ignorant cultivator of *Santa Cruz* makes a hole in the ground with a stick,

puts in a grain of corn the seed takes root, and without any more attention the plant grows and produces 800 for one. It is inutile to say that the sugar-cane can be produced everywhere with good exit, and it may be termed the only industry in the interior. In *Santa Cruz* good sugar is made; there are cane fields in all the valleys, and alcohol is made, the sale of which is of considerable importance. The Cinto and Caracato valleys are almost exclusively dedicated to vineyards, and if the proprietors would practice the European methods, they could make wines there equal to the best made in Europe. Honey and wax are abundant, without mentioning the *coca* and *mate* herb; the first is exclusively used by the inhabitants of the *Cordilleras*, where the Indians consume it in large quantities: the *mate* herb, also known by the name of Paraguayan herb (*yerba Paraguaya*) is an important article of consumption in South America.

Passing from the alimentary substances to the medicinal, in the *Cordillera* is found the *valenciana hamahana*, *ralleriana catacata*, *ajenciana tarutaris*, *coriophilata* and *arnica* of the *Andes*; in the valleys, the quina tree, the bark of which is extensively exported, the sarsaparilla, *copaiva*, gum arabic *guayaco*, *tolu*, *jalapa*, *tamarindo*, *chiriguano*, castor oil, *hipecacuana*, *mand*, camyhor tree, and balsams and oils of every species.

The substances for coloring are not less abundant; the *campeche*, *achira*, *palito*, *achiote*, *airampo*, native

nopal which produces *majna*, two qualities of indigo which are judged to be equal to that of Guatemala, *sobo cumpan* tree, the bark of which is applied to many uses and gives a ferruginous color to leather, while the *algarrobo* produces a yellow tint. Also, the materials for weaving, such as white and yellow cotton, which is to be found in a wild state in great abundance, flax, hemp, *pita*, aloe, the mulberry tree, the *mapajo*, the *mataju*, a species of cotton as brilliant as silk and that can be colored the same as wool; all kinds of timber for construction and cabinet work, the laurel, the *cancandais*, the colored *jarca* of a deep red, the *gateada* with a dark color inside and dotted with magnificent jaspers, the lance which is almost black, the *soto* and the *chirimoyo* of a light red, the *lapacho* and the *churqui* of a purple color, and the cedar which surpasses them all in colossal size and dimensions.

The fruit plants that are found in Bolivia, both cultivated and wild, are the following:

Chirimoyo, which fruit is of the best quality, various classes of peaches, damsons, oranges sweet and sour, pineapples, pomegranates, citrons, lemons, *ajipa*, *albarillo*, cherries, *granadilla*, *llucho*, *pacay* or *pacæ*, pears, cucumbers, figs, *chanar*, that produces a fruit about the size of an olive and of a yellow color, *aluthi*, peanuts, *ambaiba*, almonds, *acu-guayaca*, *carari*, strawberries, plums, coco-nuts, walnuts, *patapaya*, bananas, Indian figs, *paltero*, *guapurù*, *guayavo*, *lucuma*, *achachirù*, *nispero*, dates, *capulí*, apples, quinces, white

mulberries, *maruré* or bread-fruit tree, limes, grapes, tamarinds, *brevas*, sweet cane, water melons, mush melons, sweet potatoes, *cacao*, coffee, *pitahaya*, sweet calabash, beets, *achojcha*, *achira*, *aguay*, many species of red pepper, garlic, *aserera*, artichokes, *ajonjolí*, peas, celery, water-cresses, onions, cauliflowers, many kinds of cabbages, asparagus, a great many classes of beans, *garbanzos*, pulse-beans, olives, *lacayote*, lettuce, turnips, *oca*, *mandioca*, *oréganos*, many classes of potatoes, papaws, palmettos, parsley, *pimpinela*, radishes, *racacha*, *gualuza*, pumpkins, carrots, *quinua*, rice, corn, wheat and barley.

The PEA-NUT, which abounds in almost all the departments of the Republic, gives from 40 to 45 per cent. of oil for many uses; it serves as a substitute for olive oil.

ALUTHI is a small tree that produces delicious black cherries. It grows wild everywhere in the forests.

MOUNTAIN BEANS grow on a slender little tree, and its grains are like corn; they are eaten toasted, are floury and nutritive, and taste something like the fresh garden bean.

CACAO.—This valuable tree is found at the foot of the last chain of mountains leading from the *Cordillera de los Andes* to the interior, and above all in the *Mojos* missions. The fruit harvested in those places is considered to be of superior quality.

The TAMARIND, planted in the missions, yields abundantly, and is used there as a medicine.

•

VANILLA grows wild in the woods, and is gathered there by the Indians.

The SUGAR-CANE, which yields abundantly, is only made use of for the consumption of the interior of the Republic.

BEES-WAX.—The Indians search the numerous forests, from time to time, to collect the wax, which is very abundant in Bolivia. After first preparing the material, it is only necessary to leave it exposed to the air, and a wax of sufficient fineness is formed.

The GUM ELASTIC tree grows naturally in the forests, and at present constitutes an important branch of commerce with Brazil.

The COPAIVA would give greater products, if the Indians received any remuneration for harvesting it.

The INDIGO PLANT grows in a wild state on the plains of *Tarija*, *Oran*, *Santa Cruz* and in other localities.

WILD COCHINILLA is found everywhere, although it is not cultivated anywhere. The Indians gather it to dye their *ponchos* (sort of blanket worn as an over garment).

COTTON is found in a wild state, and in the greatest abundance. The plant grows spontaneously, and yields about as abundantly as it would with ordinary culture.

For medical uses, Bolivia produces the following : Sarsaparilla, vanilla, *alucema*, *artemisa*, *borraja*, tamarind, water-cresses, *anco-cebadilla*, *achicoria*, *achicote*,

azahar, balsam-apple, *canchalagua*, *chilca*, *chicoria*,
espinco, *estramonio* or *chamico*, *guaicaya* or *trinitaria*,
guaricunca, *huira-huira*, *hinojo*, *hacatu*, *hataco*, *lampaso*,
romasa, linseed, *llanten*, *malvavisco*, crab-apples, *mas-*
tuerzo, *macanguay*, mustard, *quina-quina*, *poleo*, *quino-*
quino, *ruda*, *salvia*, *sairi-sairi* or wild tobacco, *melisa* or
balm-mint, *trèbol*, *vilca-vilca*, *yerbu buena*, *valenciana*,
hamahana, *valeriana catacata*, *jenciana*, *tani-tani*, *corio-*
philata or *arnica* of the Andes, *vino-vino*, *sassafras*,
sauco, *sensucupira*, *hediondilla*, *helecho*, *asiquiero* or
isiquiero, which produces the balsam of Mecca, *hipecacuana*,
jalap, *jenjibre*, *matricaria* or herb of St. Mary, *macororo*,
mamuri, *misiko*, *orosus*, *muccho*, nettle, *Pinon*, *parapara*,
Pinonsino, *poligola*, *polvorin*, *quinuali*, *ractania*, *sabina*,
sabia del abedul, *sandragon*, *sago*, *soliman*, *tanaseto*,
tani-tani, *tola*, *tacuma*, *taru-taru*, *tusilago* or horse hoof,
tutunero, *uruna*, *verbena*, *vira-vira*, musk herb, viper herb,
yugilla, *yancacala*, *ebecuaruro*, *chepereque*, ambrosia or
altamisia, caltrop or dry love, poppy, celery, *alucema* or
espliego, *ambaivillo*, *matico* or *moco-moco*, *altea*, lily of Yungas,
hortensial saffron, *aristolocha* or *bucu-bucu*, *barbasco*, *bistorta*,
balsamina, *calceolaria*, *cainea*, sour cane, *cuto-cuto*, *culen*,
cascarilla of various classes, *catacata*, *cedron* or perfumed
verbena, *cepacaballo* or negro head, citron, *colchico* colorada,
contrayerba, *copaiva*, *copal crucero*, *cuarango*, *cuguchi*,
espinoso, *chamito*, *chirignana*, *enebro*, *doradilla*, *escobilla*
or herb of the *uron*, *escorzonera*, white thorn, acacia from
Senegal, which produces the gum arabic, *estorague*, strawberries,
jenciana of

many classes, *grama*, *guapurusito*, or *yerba mora*, *malvas* of various species, *jarajorechi* and *mosqueta*.

The timber for construction and cabinet-work is of great variety and abundance. The magnificent forests that abound in all the Republic contain about seventy classes of different trees, among which are distinguished: the *colo*, cedar, *guayacan*, *jacarandá*, *algarrobo*, *guayavo*, and others of the strongest kind of timbers and appropriate for all manner of constructions, and with beautiful foliage, as follows: *aveto*, *acebo*, *acebuche* or wild olive, *ajos*, *algarrobillo*, *amarillo*, *aromo*, *bos*, *cachacacha*, *ceibo*, *cocabolo*, *coquino*, *copal*, *cuchi*, *cupechino* specie of *algarrobo*, *ciquili*, black *curapsi*, *cuta*, *chicharron*, *chari*, *chepereque*, *chirisiqui*, *churqui*, *churco*, *chonta*, *copaivo*, *evacuaruro*, *guavira*, *granadillo*, *almendro*, *guayavo*, *guacacunca*, *guayavoche*, *guayaco* or *palo santo*, *higueron*, *huaicha*, *tarca*, *tichitiniqui*, *junco*, *yuruma* or *canelon*, *arrayan*, *juno* or laurel, *mara* or mahogany of many species, *malles*, *momo*, *mopoli*, *moradillo*, *negrillo* or black poplar, walnut, American elm, *osotocoro*, *alisandro*, *palito*, *perpescocarqui*, *puta*, *quebracho* or lance, *quiche*, willow, *soto*, *tajivo*, *tacuarembù* and *tarara*.

Among the palms, may be noted the *totay*, which is the principal resource of the natives in penurious times. The leaves of the palms *mutacu*, *sumaque*, *totay* and *cusis* serve to roof the Indians' houses or to braid hats and other objects. The trunk of the *caronday* is employed in the construction of solid roofs, after giving it the proper cut and form, and is

of great durability. The palm denominated *chonta* is of the greatest utility on account of the hardness of its beautiful black wood; palm of the Andes, *cusi*, fan palm, *matacuchi*, royal palm, *rintepetz*, palm of the *Rosario*, *tuema*, *sagù*, *chical* palm, *tumijojo*, *comounci*, *marajan*, and many other palms, among which I will note the *marayan*, which gives a juicy, agreeable fruit, also the *motacù*, *totay* and *cusis*, for their excellent coco oils; the heart of all these trees can furnish, besides, a dainty and healthy aliment.

There are an endless number of trees and plants that distil resin, and a diversity of oils, applicable to industry; incense, *sangre de drago*, copal gum, gum elastic and arabic, *benjui*, *motacu totai*, *caucho*, balsam, *grimilla* and *acco-acco*.

There is also an immense number of bees that make wax, both white and black.

In the branch of dyes is found *airampu*, wild saffron, *brasilete*, *campeche*, *croton de la laca*, *cuersitron*, *curcuma*, *chapi* or *rubia*, *achiote* or *urucu*, *fustete*, *granza*, walnut, the *côrteza*, *jotavio*, *orchilla*, *palillo*, *itira*, *sihuai*, *tara*, *guayacan*, *molle*, *pisco-chaqui*, *patito*, *chirisiqui*, yellow wood, *achira*, Brazil wood, red mulberry of two species, indigo of two qualities, *sogo*, *algarrobo*.

Among the plants which have a diversity of uses are, tobacco of the best quality, cotton, hemp, *junco*, flax, cork-tree, the bark of which is used for corks, wax tree, *cana brava*, thistle, *chuchio* or *cana hueca*, *bambri* or *tacuarembù*, *enodendron*, which supplies the timber for rafts, *esparto*, *güembe*, *tobonero*, *tiso-tuvo*

toco, llausa, mora, maguei, mapaju, poloto, totora, tocoto, paradise or sacred tree.

Vegetables that serve for fodder: clover, *capin, curi, challa* or *huirio, sorvo, camalote, saracacho*.

Vegetables that serve for combustible: alder, black poplar, *tola* and *areto, quenoa*.

CHAPTER X.

THE COCA—ITS CULTIVATION—MODE OF HARVESTING IT—A SACRED PLANT—MANNER OF USING—ITS VIRTUE—THE INDIANS.

The COCA is a small shrub that rarely reaches six feet in height, and that commonly does not exceed three; its foliage is of a brilliant green; its flowers are white, and its fruit is small and red. When the plants come to be eighteen inches in height, they are transplanted from the seed-beds to the fields called *coca*-orchards. The ripe leaves are picked off by hand, and are dried out in the sun spread out on slabs of native slate-stone. This operation requires great care, as the leaves must be protected from humidity, which changes their color and diminishes their estimation and value. Afterwards, they are packed in sacks of fifty pounds, and in this state it is transported everywhere.

To the Indians, the *coca* has always been a sacred plant. There are found in the histories of Bolivia

and Perú, a thousand proofs of the religious adoration in which it was held by them. The priest that offered sacrifice in honor of the Sun, perfumed the temple with *coca*-leaves, and chewed some before consulting the oracle. The favors of fortune, the curing of infirmities, and even the triumphs of love was not obtained without the intervention of this celestial plant, *talisman* or *panacea*, the use of which was for a long time reserved to the *Incas*, as an exclusive privilege of its divine origin.

Experience has proved that these apparent superstitions were the natural fruit of the gratitude of a people, who had always found in this plant the cure of their infirmities and the recovery of their exhausted strength.

The Indians chew the *coca* mixed with a small quantity of an alkaline substance called *llucta*, which is made from the roots of thorn, Peruvian schinus, and other vegetables, well pounded together, and sometimes with ground *pas*, and always carry with them a little bag full ready for use. They take it from three to six times a day. Doctor Tschudi, in his travels in Perú, makes mention of an Indian sixty-two years old, that he had employed at hard work, who during five days made use of no other aliment and only slept two hours each night. Shortly after this, he marched on foot one hundred miles in two days, and said that he was ready to repeat the trip if he was given a new provision of *coca*.

The Indian's life is of the most laborious kind, and the work that he does could not be accomplished by Europeans. The Indian resists, thanks to the *coca*, that in which the white man would succumb. In the mines, situated in the coldest regions of the *Cordillera*, the Indians work day and night in the extraction of the ore, and to rest and renew their strength constantly chew the *coca*.

The Indian is also employed in the postal service. With a mail-bag he travels rapidly, hundreds of leagues, always running. As a laborer, he transports merchandise through the defiles in the mountains, where the mules cannot pass. There would be no end to it, if I wished to give a minute sketch of the picture of his life of struggles, of labor and of inhuman privations. It would be necessary to follow the shepherd in the immense plains, the laborer in the raw winter nights watering the fields in the water knee-deep. To be able to resist and continue these hardships, the Indian provides himself with a handful of corn, some potatoes and a bag of *coca*.

Some incredulous persons have attributed to the constitution of the Indian the strength he maintains under all circumstances, the energy and resistance which he manifests in pain and fatigue, but numerous experiences have demonstrated that the real resistance of the Indian is the *coca*. Give the Indian food twice as good as that to which he is accustomed, and deprive him of his *coca*, and he loses his strength, and becomes as susceptible as the

European to the infirmities of the place he inhabits. The Indian avoids all those evils by chewing his favorite plant.

The *coca* from Yungas, Bolivia, is the best in America, for its strength, sweet and agreeable taste.

CHAPITRE XI.

THE YUNGAS COFFEE—ITS CULTURE—MANNER OF HARVESTING—THE VIRTUES OF COFFEE—CHEMICAL ANALYSIS.

The Yungas coffee is of a superior quality to that of Mocha.

The coffee tree commences to produce, generally, the first year, but the coffee plantations give their full yield at the fourth, and ordinarily last fifteen or twenty years, and even more, according to the soil and climate. A full-grown coffee-tree should produce regularly from three to eight pounds of coffee each year, which is the average during a term of five years' productions.

The ripening is not uniform, consequently the harvest can be divided into two, three or four epochs of the year to collect the *berries* fully ripe, which is an essential condition to obtain good coffee.

Well known are the virtues of coffee, the liquor of which, besides augmenting the powers of the

stomach and aiding the digestion, recreates the palate, arouses the mental powers, dictates to the pen the most sublime thoughts and transports the imagination to an ideal world full of poetry and celestial illusions. To drink coffee, according to the expression of a sage, is the same as to *drink a ray of the sun*, it is the same as giving to the soul a *real existence that changes a world of pain for an eternity of felicity*.

The chemical analysis made of the Yungas coffee in sixty-four parts of the coffee grain, found the following substances:

Mucilage Gum.....	8.00
Resin	1.0
Extract and bitter origin.....	1.00
Glico acid.....	3.05
Albumia	0.14
Fibrous and insoluble matter.....	43.05
Loss.....	7.76
	64.00

To this product should be added the mineral salts contained in all vegetables.

CHAPTER XII.

THE SUGAR-CANE—ITS CULTIVATION—MANNER OF HARVESTING—PRIMITIVE MODE OF MAKING SUGAR—GRAPES—PRICES OF NATIVE WINES.

The SUGAR-CANE grows to a height of nine or ten feet, and sometimes even more; its trunk is composed of knots, from which shoot leaves that fall in proportion as the cane grows, resulting that when ripe it only has a few remaining near the top to form its head; from the middle of them, when in bloom, shoots up a species of arrow or stalk, from thirty to thirty-five inches in height, which terminates in a large tuft full of very delicate little ears that contain the seed.

The plant is multiplied with great facility by means of sticks, which are stuck in the ground in furrows made about three feet apart, and in which is put the seed. If the season is favorable, the plant begins to sprout at the end of seven or eight days, and arrives at maturity generally in nine or ten months. In good soil, well prepared, and attended with care, the plant can subsist for fifteen years without any necessity of renewing; but, in light lands, sometimes the plantations have to be renewed after the second harvest.

To harvest the sugar, first, the cane is cut, and after removing the leaves, their length is reduced to

four feet, more or less, put in bundles and carried to the mill to squeeze out the juice.

Those mills are composed of three wooden rollers, encased in open-work iron cylinders, the outside of which is well polished. These cylinders in their rotation press the canes that are placed between them. Two persons are generally employed in the handling: one places the extremities of the cane between the first and second cylinders, while the other on the opposite side receives those ends as they are passed to him and introduces them between the second and third cylinder.

The cane bruised by the cylinders loses its juice, which, being received in a kind of trough, passes through a canal to a large cauldron located in the premises. The remains of the cane, called *bagazo*, serves for fuel to make the cauldrons boil; although in some plantations they are first thrown into water with the foam of the juice, which naturally clings to them, and allowed to ferment there, for the use of the laborers, which is not at all a disagreeable addition to the drinking-water.

As the juice of the cane turns sour if left more than thirty-four hours without boiling, it is at once proceeded with, at the same time mixing with it a certain quantity of *lime* and *lye*. The cauldron is placed upon the fire, and in proportion as the juice is heated it produces a great quantity of foam, which serves to feed animals and to make a certain kind of drink. Then the *mosto*, already somewhat prepared

by this first operation, is emptied into another smaller cauldron, with more lime and lye thrown in, and made to boil rapidly; and as it still raises foam, it is removed as it appears on the surface, and deposited in a hand kettle for to be afterwards boiled and clarified. After the juice has passed in that way through six different cauldrons successively, where by boiling, scumming and evaporating, it has at last reached the consistency of *syrup*. It is then transferred to a cauldron without fire; here, by moving it with a spatle, it is converted into an infinity of little grains or crystals, and in this state it is thrown into moulds of earth, or wood, or barrels with two or three holes in the bottom, so that the uncrystallized part can run out, and which is conducted into a cistern. The liquid taken afterwards from those barrels still receives new preparations, by which means the different colored *brown sugars* are obtained.

The material emptied into the moulds gives also many classes of sugar. As through the distillation of the liquid, the crystallized mass wastes a good deal, the barrels have to be refilled with the same class of sugar, and in that way it is despatched under the name of *tertiated* sugar, or *loaf sugar*.

The *tertiated* sugar, and the greater part of the loose sugars, require to be purified before being employed in the uses of life.

The manufacture of sugar in *Santa Cruz de la Sierra*, is in a more advanced state of progress and regularity, and forms the fortunes of those engaged

in it. In *Cinti de Chuquisaca*, and in *Canamina de los Yungas de la Paz*, this industry has been also established with hopes of good success, and there is no reason why these manufactories should not be multiplied in different parts of the Republic where an abundance of cane is produced, when the great consumption that is made of this article would soon reimburse the expenses with usury.

In the valleys around *Chuquisaca*, in *Cinti*, in *Caracato*, and in other places, there is a kind of black grape in small, very thickly filled clusters, but of small size grain and very sweet, and similar to that from which is made the *best Burgundy wines*. If the planters would apply themselves to making the wine fermentations as done in France, there is no doubt that they would obtain from these grapes as fine and delicate wines as are made in Europe.

The following are the prices of native wines in *La Paz*, the capital of the Republic :

	\$	c.	
Old Red Wine.....	60		per bottle.
Virgin	60		"
Dry Red.....	40		"
Claret.....	40		"
Dry Sherry.....	40		"
Sweet <i>Mosto</i>	60		"
Muscadine Grape Spirits.....	1	00	"
" " 2nd class.....	80		"
Peach Spirits.....	40		"
" 1st class.....	1	40	"

CHAPTER XIII.

MINERAL KINGDOM—QUOTATION FROM DALENCE'S
MINERAL HISTORY—SAD STATE OF THE MINES—
ITS CAUSE—POTOSÍ—MACHINERY AND SUPERIOR
INTELLIGENCE NEEDED—EXTENSIVE GOLD MINES.

Bolivia encloses in her entrails that which is of the most value in the Mineral Kingdom.

The relation of her mineral history, as given by *Senor Dalence*, is interesting, as its truth cannot be doubted :

“ It is certain that at present our gold and silver regions are found much declined from their ancient opulence and name, in a manner that they barely represent a shadow of what they were, but this decline and backwardness proceed from causes independent of the nature of the mines. Our grandfathers, when working the veins, followed no regulation, employed no art, nor practicated any preliminary work that would tend to prolong the duration of the labor, or economize the daily wages in the extraction of the ore or water ; consequently, as soon as the water presented itself, they either abandoned the mines, which they generally did, or commenced new and costly works to make wells and sluices in which to drain it ; expenses which could only be tolerated in the richest veins, caused the others to be abandoned and ruined. To this

cause has been added others derived from the general revolution of the aborigines, which happened at the end of the last century; from the war between Spain and England, and that of our independence. Laborers were scarce, there was a want of quicksilver since the year 1802, then came the drought of 1804, and soon after the famine and scourge. The rich province of *Lipez* was left uninhabited, the ninety chief engineers of *Potosi* were reduced to thirteen, and those of *Oruro* to eight. And these two last, as if they had been the insurgent forts, were burnt and devastated by the royalists; later on came the forced loans, the continual military drafts, the enormous contributions, and other persecutions of this nature, and thus concluded with both capital and capitalists. Those who know how much capital is necessary to newly establish mineral works, when there neither exists structures, artisans nor laborers, will not wonder at seeing the state in which to-day are lying our mines and miners after so many calamities."

It is seen by the preceding, that the country is in a very bad state, and that an application of a quick remedy for its sufferings is very urgent. Notwithstanding, we should not despair for its future, as that profound anguish can be at once converted into incommensurable prosperity. Let the river *Madera* see her cataracts canalized, or the river *Bermejo*, which is easier, find a company disposed to utilize its waters, and then Bolivia will revive as if touched by a magician's rod. I have presented her as she

appears to-day, dying imprisoned between her impenetrable walls and endless deserts; but it should be kept in view that these walls are of metal from the smallest hillock in the plain to the highest mountain peaks, that those deserts are fertile provinces, admirable for their vegetation, and that metals and soil only wait for capital and intelligence to be converted into infinite treasures.

I will now form the catalogue of the mineral riches, so that those who could have believed the country lost through bad treatment, may form an idea of the enormous prosperity that is reserved for it the day that European emigration comes to give it life.

The *Potosí* mountain, whose height is 16,150 feet above the level of the sea, and only about nine miles in circumference, is the most celebrated metaliferous deposit, and, without contradiction, the richest known on the globe. The excessive cold that reigns there all the year, the rarefaction of the air that only the Indians can withstand without suffering, were not an obstacle sufficiently powerful to impede an enormous population from clustering around its declivities pierced with subterranean galleries, and, according to the census of 1611, the number of the inhabitants of the city was 160,000. That was the time of splendor; the opulent miners then came to *Chuquisaca* to enjoy under a more genial climate the prodigious riches that were yearly drawn by the *Indian slave*, from that inexhaustible receptacle.

The mountain, itself alone, has produced, from the time of its discovery until 1846, the fabulous sum of \$1,651,721,578, or in French currency francs 8,258,607,870, and even now, notwithstanding the improvidence of the former workers, and although no labor has been directed towards its depth, although no machinery has taken the place of man and no progress has been made in the methods, which are still the same as were used in the time of the conquest, that famous cone in 1846 gave \$107,054.

The mountain of *Potosí* is nothing else, notwithstanding, than the culminating point of a metallic chain that has no equal in the world. It was unknown to the *Incas*, who only utilized the silver in small quantities, and took from the *Porco* mountain almost the total amount of that which abounded in the temple of the Sun at *Curianchi*. At the side of this giant are seen, in the same province, the mines of *Guariguari* and *Machacamarca*; in the province of *Lipez*, those of *San Antonio*, *Taquegua*, *Moroco*, *Santa Isabel*, *Buenavista* and *San Cristóbal*; in the province of *Chichas*, more than eighty hills whose metals formerly produced from 2,000 to 3,000 marks of silver to the box. The province of *Porco* contains the mineral seat of *Porco*, *Siporo*, *Ubina*, *Guanchaca*, *Macluyo*, *Cerrillos*, *Colavi*, *Andacava*, *Cosuna*, *Pulayo*, *Turque*, *Guaína-Potosí*, *Quilcata*, *Malmisa*, *Santa Juana* and *Carguaicollo*.

The province of *Chayanta* continues this nomenclature with dignity. Besides the silver mines of

Toracarí, *Maragua*, *Ocurí* and *San Pedro*, is seen elevated the famous group of *Aullagas*, whose hills are all of silver, and which, after having been abandoned during sixty years, have lately been again utilized, and have in a short time yielded \$3,000,000 without its product having diminished till the present day. The province of *Arque* is no less celebrated for the mines it possesses in the canton of *Colcha*; *Berenguela*, *Guacchacuirí*, *Negro-pabellon* and *Guayllacocha* have yielded a great quantity of silver, and would give more still if the methods were good and the works well directed. It has been observed that in *Guacchacuirí* the ore is rich on the heights, and poor in the profundities, where it is converted into native sulphate of zinc. In the province of *Mizque*, there are silver mines, and a great deal of sulphur of lead that serves for the foundries. There are also rich silver mines in *Quioma*, but the fevers that prevail there prevent their being utilized. The extraction from the *Berenguela* mines has been suspended, not on account of epidemics, but for reason of inundation; said mines number more than 700, and are waiting for a more illustrated industry to come and give them life. The mines of *Carachapí* yield also from 500 to 600 marks per box.

Oruro presents to-day only a pile of ruins, but in other times held the first rank, after *Potosí*. Although the innumerable mines of its province have been partly abandoned, those of *Chuquimia*, *Joya*, *Conde-auqui*, *Negra-pabellon*, *Sepulturas*, *Sorasora*, *Antequera*.

and *Ichocollo* continue yielding silver. In the province of *Poopó* are counted, also, eight mines in activity, namely, *Poopó*, *Coriviri*, *Cobremayo*, *Venta del medio-Hurmiri*, *Condo*, *Candelaria*, and *Salinas de Garcimendoza*. At the foot of the mountains that overtop *Coribiri*, there is a little stream, where grains of Bismuth are found weighing from 3 to 4 half drachms. The land which hides them generally whitens upon the surface.

It has been calculated that only the department of *Oruro* has paid in fifths to the royal treasury during the 30 years that preceded the independence, the sum of 40 millions of dollars, which would be equivalent to a production of \$200,000,000. That opulence has disappeared, but, as already explained by *Senor Dalence*, who knows marvellously well that department, the five thousand silver mines of *Oruro* have only been abandoned for want of machinery to extract the water, and only the ignorance and misery of the possessors could have been the cause that those operations were suspended. The canton of *Salinas* has a chain of hills of 20 leagues extension, completely run through by veins of virgin silver, that have not been exploted until the present day, for want of machinery and means of transport. In every place where the hand of man in itself has not been sufficient, the riches has remained buried waiting the conquest of a superior intelligence.

If while reading this rich inventory the eye has glanced over the map, it will have been observed

that this metaliferous line has not separated from the peaks of the chain. Each crack or break in the high *Cordillera* has lent its contingent of silver ore, from the province of *La Paz*, that borders on *Perú*, to that of *Tarija*. The wall of metal that to-day condemns Bolivia to poverty, that forces them to let the agricultural fruits rot in the ground rather than uproot them, that neutralizes all her industry, that wall will be the foundation of her greatest prosperity when the rivers have replaced the present roads in the communications of the country. The precious metals, which the *Cordillera* contains, commodiously resist transportation to the navigable ways, and Bolivia will see herself rationally organized for production, that is to say, for riches.

Silver appears everywhere under the snow-clad peaks of that ungainly colossal; but gold is not less abundant, and each torrent carries with it enormous quantities of auriferous sands, of which there are vestiges everywhere. The temples of the *Incas* ornamented with gold, the fabulous ransoms paid, the relations that excited the covetousness of the adventurers of the XVI. century can be resuscitated to-day under the pacific direction of industry. Among the streams should be cited with preference the *Tipuani*, that *Sacramento* of South America; but the auriferous riches of South America is not limited to the course of that river. I will continue my nomenclature, and, although a dry analysis, it is indispensable to present clearly the idea which gave

origin to these notes, namely, the advantages that this country will offer to industry as soon as navigation facilitates its communications.

The province of *Chayanta* is celebrated for the gold fields of *Copasica*, *Amayamba*, *Chuita*, *Taconi* and *Choquenta*. That of *Tarija* is no less famous for the washings that exist, beginning at the rise of the river *San Juan*, which immediately joins the *Pilcomayo* and takes the name of *Pilaya*. The Bolivians believe this river to be as rich in gold as the *Tipuani*, with the advantage of a climate infinitely more healthy. In the province of *Tonima*, there has been discovered in *Pomabamba*, near *Pilcomayo*, an immense tract of alluvion land running towards the river, and which is full of particles of gold, indicating lower layers. In *Choquecamata*, department of *Cochabamba*, have existed two veins of gold that have yielded 40 millions of dollars and fomented the importance of *Cochabamba*. There have been found in the *Cocapata*, or *Santa Catalina*, hill some veins of gold, but of little value. In *Sagarri* there are, also, signs of several veins, and that are not worked for want of money and intelligence.

Arriving at *Santa Cruz*, there is to be found, east of the *Santo Tomas* mountain, a gold vein of 60 miles; and further away, in the country of the *Guarayos*, rises the *Caparrus* at one of the extremities of the chain cemented on the opposite side by the famous *San Simon* hill, from which the Jesuits extracted heaps of ore. Although it has only been exploted at

the two extremes, the simultaneous presence of gold gives reason to believe that it will be found disseminated in equal quantity in the whole chain.

The department of *La Paz* is, without contradiction, the most favored ; without counting the *Tipuani* group, that of *Mapiri* and of other auriferous rivers, there is found in its territory, in the province of *Cercado*, several veins of gold. The principal one is *Chuquiagillo*, from which was extracted the famous lump weighing 90 marks, which has been so much admired in the Museum of Natural History in Madrid. Many millions of dollars have been taken from the gold mines of *Araca*, and still more would be extracted if there was capital to work with. *Oruro* has gold in *Yrooco*, *Chuquimia*, *Joya*, *Sepulturas* and *Sorasora*.

Thus, in every place where the *Cordillera* elevates itself, the silver appears inlaid in quartz, *esquita* or iron spar, as has been found in the *Manto* mine near Puno in Perú. In all the points where the *Cordillera* is lower, and the water flows, the gold shines in the form of pips and auriferous sands. Those of the *Carabaya* in Perú, and *Tipuani* in Bolivia, have been gathered, and on comparing them with those of the *Sacramento*, it was seen that they have the same aspect, the same formation, which has afforded the indisputable proof that the fabulous auriferous riches that has populated *California* exists in the whole extension of the immense chain, which is the backbone of America, and whose marrow is of silver and gold.

Thus far I have only spoken of the precious metals. The others had not an intrinsic value high enough to call the attention of the first Europeans that came to America, and their extraction, although profitable, would not have satisfied quickly enough the demands of their insatiable greediness. It would not be so with the European industry that would bring to-day, to this country, its practical knowledge. I will not say much, then, about the second class metals, not utilized up to the present day in Bolivia, or at least very little utilized, although their existence is certain. I will simply present an alphabetical indication of them, as also of the other mineral substances, leaving to the intelligence of the speculators the care of calculating their commercial worth.

CHAPTER XIV.

ALPHABETICAL LIST OF SECOND CLASS METALS, MINERAL SUBSTANCES, AND PRECIOUS STONES, AND WHERE TO BE FOUND—INDUCEMENTS TO A NAVIGATION COMPANY.

The following is a list of the principal second class metals, mineral substances, and precious stones, and where found in the Republic of Bolivia :

ALABASTER.—A quarry of Alabaster of excellent quality, and similar to that of the East, is found in *Calacota*, department of *La Paz*. It is used in all the works of art in which that substance is ordinarily employed.

ALUM, (solid).—In *Inquisivi*, and in wide veins as pure as that of Rome.

ALUM, (brittle).—In *Sicasica*, *Carangas*, *Poopó* and *Oruro*.

ALUM, (*de Pluma*).—In *Porco*, *Chayanta* and in *Cercado de Oruro*.

AMMONIAC, (materials to fabricate it).—Incrustated in the cookeries and roofs of the indians. Haenke speaks at length of them.

ANTIMONY. — *Sicasica*, *Cercado de Oruro*, *Chichas*, *Porco* and *Poopó*. At one league from the last named town is situated a very pretty vein of almost

pure antimony, the separation of which is effected by applying to it a flame of any combustible.

ARGIL, (white).—In *Oruro, Chayanta, Porco, Pacajes* and *Tomina*.

ARGIL, (colored).—In *Potosí, Pacajes, Oruro, Carangas, Chayanta* and *Tarija*.

ARSENIC, (white).—In all the silver ore.

ARSENIC COMBINED WITH SULPHUR, (or in a state of *orfinamiento*).—In *Choquelimpia de Carangas, Lipez*, and *Atacama*.

ASPHALTOS.—There are in the province of *Tarija*, several mines of asphaltos, discovered at the beginning of XVII century, by *Barba*, and again found in our days by a Brazilian.

BISMUTH, (native).—In pips in the ravine of *Coribire*.

BORAX and SODA.

COAL (stone).—In *Tejahuasi*, near *Chuquisaca, Taguapalca (Cercado de La Paz), Chorrete*, (province of *Acero*), *Chulchucani* (province of *Polco*), and *Tarabuco*.

COBALT.—In *Sicasica, Cercado de Oruro, Lipez, Atacama* and *Chichas*.

COPPERAS.—In powerful veins in *Atacama* and *Lipez*.

COPPER.—*Senor Dalence* hardly speaks of it, only esteeming, like his predecessors, the silver and gold. The copper might, for all that, be the object of an immense industry, as it is found scattered almost

everywhere near the silver. There are in *Lipez*, abundant veins of copper, both white and red, which contain silver and gold, and in the province of *Tarija* a great deal of copper that has not been exploted; it is in enormous quantities in the Desert of *Atacama* on the sea shore. The explotation is limited, notwithstanding, to the native copper of *Corocoro*, that is found in spangles and mixed with argil. Often there are found pure veins as malable as copper of the third fusion, and that could be immediately forged with a hammer. These rich coppers are melted in the country, and the mere aspect of the dross shows a loss of at least twenty per cent. The furnaces are of a deplorable construction, no ventilation and the loss enormous. I could say the same of the methods of extraction, of grinding and washing that I saw in *Corocoro*. Notwithstanding the infancy of these works, the mines there offer enormous advantages, and their importance increases every day. The official accounts of 1846, gave \$16,600 for product of melted copper, and \$146,000 for washed copper known by the name of *barrilla*. New discoveries have been made since then, that will necessarily be multiplied in a country where the metal is found everywhere.

FLINT.

FULLER'S EARTH, (for manufacturing cloth).—
Department of *Oruro*.

GRANATO OPIROPO.

GUM, (mineral).—In *Tarabuco*, province of *Tomina*.

IRON.—This metal that is no where exploted, is found in abundance everywhere in the country. There are immense deposits in the canton of *Santa Ana*, department of *Santa Cruz*, in an oxyde, peroxyde and carbonate state. It exists under the same forms in *Sunas*, thirty miles before arriving at *Santa Corazon*, surrounded by the richest vegetation and strong water-power. In the department of *Beni*, near *San Ramon* and *San Joaquin*, there is plenty of hydrated iron, and the country abounds in vegetable and mineral coal. It is met with everywhere, as well in the country of the *Mojos* and *Chiquitos*, that is to say in the plains, as in *Atacama* at the borders of the Pacific; and in the crests of the chain from *Oruro* to the *Cordillera de Iscayache* (department of *Tarija*), which is like an enormous mass of magnificent dark iron, the samples of which as picked up on the surface and examined on the road were pure enough to be thrown into the furnace.

KAOLIN.—In the same vein in *San Juan de Oruro* is found the *Kaolin* and the petunse, whose combination serves in China for the manufacture of porcelain.

LEAD.—This valuable metal is completely overlooked in the statistics of *Senor Dalence*. He only mentions it because of its abundance in the province of *Tarija* and *Mizque*, as appropriate for melting silver, being found in a galena state. It is, notwithstanding, found scattered about every where, in magnificent pure crystals, argentiferous, and mixed

with copper. It is almost constantly found with the silver, but is not exploited any where. The ancients despised it as a poor metal, and the moderns have followed the example of their forefathers, bringing with great expense from other countries the lead required, and that could have been exploited with the greatest facility, as it is met with where there is an abundance of combustibles. It cannot be doubted that in the metallurgist reorganization of Bolivia, the copper, the iron and the lead, will rival the gold and silver, in what appertains to the importance of their exploitations and the benefits they should produce.

LIGNITA.—*Cercado de Tarapacá*, in the lower *Atacama*, and *Tarija*.

MAGNESIA BORATADA, carbonated, (*esparto de tarco*) hydrated.

MANGANESE.—*Cercado de Oruro*, *Chichas*, *Lipez Atacama*.

Manganese (oxydated).

MINERAL ALKALI.—In *Cliza*, *Atacama* and *Tomina*.

NAPTA.—Province of *Tarija*.

NATIVE SILVER.—*Cornea* (cloruro of silver; lead, rough leadish), red (roset, antimonial sulphated silver), glassy (brillant silver), antimonial sulphated black (*polivasito*), and yellow.

NICKEL, (arsenical).—In various parts.

PEAT.—In almost all the quagmires of the ravines.

PRECIOUS STONES.—In *Lipez* and *Atacama*, topazes, emeralds, opals, jaspars and azures; near *Santa Co-razon*, hyacinths and opals; near the explotation of the *Candelaria* (department of *Oruro*) topazes, cristalized and uncristalized, and also amathysts. In *Salinas de Garcimendoza* is found the *timpanita* or *sonora* stone.

PUMICE STONE.—(Composed of various minerals and especially of *opcidiana* and *truquito*.)

QUARTZ HYALINOS.—Immense quantities in *Santa Ana*, and the little neighboring towns, as also every specie of silver dross; the combustibile is in such abundance, that the manufactory of crystal could be carried on at a very small cost. The *Chiquitanos* (natives) have notable aptitudes, and a person knowing the art of fabrication, could find among them all the elements necessary for the immediate establishment of an important factory.

There is in many parts common lime, carbonate, fibrous, *sacaroide*, bituminous, chalky, sulfate, cristalized, and fibrous sulfate.

QUARTZ AND VITRIFIED SAND.—In all the provinces of metaliferous deposits.

QUICK SILVER, (native).—Disseminated between red chalk, near *Potosí*, in diverging veins in *Omsauyas*, and loosely in *Chayanta*.

ROCK CRYSTAL.—There is a great quantity of Rock crystal, in the *Ancora* hill, in the form of green grains like emeralds.

SALT, (common).—In great lakes in *Pacajes*, *Carangas*, *Poopó*, *Chiquitas* and *Porco*. In the province of *Lipez*, there is a salt lake of 540 miles in circumference, and between *San Cristobal* and *Llica*, a plain of 120 miles long and 48 wide covered with salt.

SALT, (Rock) (*Sal Gema*).—In inexhaustable mines in high *Atacama*, and near *Potosí*, where are the explotations of *Yocalla*, that supply all those provinces since the conquest.

SALT (*Glauvero*) (sulphated soda).

SALTPETER, (nitrate of potash).—*Atacama*, *Oruro*, *Cochabamba*, *Omasuyos*, *Cinti* and *Lipez*.

SOAP EARTH. —Department of *Tarija*, in the frontier of *Salinas*. This earth has all the properties of the manufactured soap.

SPAR, (calcareous mineral) (*Fluorina*).

SULPHATE OF IRON AND SULAHATE OF ZINC.—In the plains of *Coolylo*, *Cordillera de Pelechuco*, there is an abundance.

SULPHATE OF LIME.

SULPHATE OF MAGNESIA.—On the shores and banks of *Pilcomayo*, *Cachimayo*, *Ayoma*, *Hayopaya*, and in immemorable other places.

SULPHATE OF SODA.—In all the high table lands. There is such an abundance of these salts in Bolivia, that Haenke pretends there is sufficient to supply the whole world.

SULPHUR, (pure).—In various points of *Carangas*, *Lipez*, *Atacama*, *Chayanta*, *Porco*, *Tomina*, in considerable quantities.

There is also found agate, *aluminita* (basis of alum), mineral oil, asbestos, jet, ærialites, (different classes), native sulphur, sulfate of alum, sulfurated arsenic both yellow and red, and argil both common and plastic.

TARCO.—Various classes.

TIN.—There is a vein in *Uncia*, province of *Chayanta*. It is found, also, in the department of *Oruro*.

TIN, (oxidated and sulphurated).

VITRIOL (white, sulphate of zinc).—In *Coribire*, *Chichas*, *Cercado de Oruro*, *Lipez*, *Pacajes*, *Porco* and *Chayanta*.

VITRIOL (blue, sulphate of copper).—In enormous veins in *Lipez* and in *Cristales*, and in smaller or larger quantities in all the silver mine regions.

ZINC (sulphurated).—In all the silver ore; in a calamine state in *Tuero de Carangas*, *Cosmi* hill (department of *Oruro*), and in *Sicasica*.

ZINC (carbonated, oxydated *ciliceo*).

I will here terminate this rich inventory, the reading of which explains, and almost justifies, the mania which still possesses the Bolivians respecting mines.

The mere exploitation of the mines of Bolivia ought to be enough to determine a company to immediately launch steamers in the *Bermejo*, and treat with the

bordering governments for the destruction of the cataracts of the *Madera*. Notwithstanding, the metallurgy should not be considered, in my way of thinking, as more than a secondary motive, conceding to the agriculture an indisputable priority.

CHAPTER XV.

ANIMAL KINGDOM—ABUNDANCE OF ALL KINDS OF GAME—BEST OF FISHING.

The Animal Kingdom of Bolivia is no less rich.

The forests are populated with several species of monkeys, the skins of which are really magnificent; an abundance of deer, who are readily taken in the hunt; the elk, whose skin, very adaptable for harnesses on account of its flexibility and durability, would be of great importance in commerce. The *perico lijeros* are also notable for their skin, and from which could be realized great profit.

The game in general could not be more abundant. The forests and plains contain thousands of birds. The birds of the mountains are adorned with rich plumage, and a truly enchanting song. In the midst of the mountains, seeing one's self surrounded with fragrant flowers, exquisite fruits, a marvellous vegetation and such beautiful birds, he is led to believe himself in Paradise.

There being so many rivers and lakes, the fish are so abundant that it alone would be sufficient to satisfy a great part of the necessities of the inhabitants. The rivers are full of shells that contain a mother-of-pearl brilliant and beautiful.

In the class of domestic animals are found all that are useful to man, both quadrupeds and fowls.

QUADRUPEDS.—*Vicunas*, *alpacas*, *llamas*, *guanacos*, deer, elks of many classes, *javalies* of two classes, *chinchilla*, *viscacha*, rabbits, *cuyes*, monkeys of many species, tapirs (kind of elk), unicorn, *borochí* or red wolf, mountain goat, *carpincho*, roe-deer, dromedary, mountain cat, *hullupa* or antro, otter, ant-eater, American tiger, *azelot* or panther cat, *perico lijero ahi* or sluggard, *pacare*, porcupine, dogs without hair, *penisari*, skunk, *yapa*, *tatú* or *armadillo*, *tartitu*, badger, fox, *zorrino*, mountain hog, and dogs of all races, sizes and conditions.

FOWLS.—Besides other birds of strange song and beautiful plumage, inhabit and adorn the forests, rivers and lakes, the following: Eagle, condor, crow, hawk, falcons of various species, ostrich, *ampeli*, *bandurria*, *bocasina*, goat sucker (kind of owl), *caran*, cardinal, quail, woodpecker, white stork, *cacao*, *cotinga*, *cuarti*, *chignanco*, *chopochoro*, *chotocabra*, sparrow-hawk or royal heron, gilt-head, pheasant, *filutitú*, brown heron, sandpiper, blue heron, water sandpiper, white heron, mountain sandpiper, gull, *gallinazos* (vulture), widgeon,

swallow, macaw (beautiful parrot), *guallala*, *huan-gue* or ring-dove, *hirpa*, *huchi*, *hornero*, linnet, *tabirá*, *tiluchi*, *tunqui*, *tántalo*, *mático*, *soco*, *cavacues*, parrot, *parignana*, duck, *punjo* or mountain turkey, partridge, peacock, peahens of various classes, *pirata*, humming birds of many classes, *rayador*, *socori*, *saracú*, *tanagra*, *tiburí*, *tapacaré*, *tarajachí*, *tentero*, thrush, *tunqui* or wood-grouse, *veintefué*, *suncues*, *tojo* or *calandria*, pigeon, owl, heron.

FISH AND AMPHIBIOUS.—In the rivers and lakes is found the *bagre*, *boga*, *carachi*, *carpincho*, *cuche*, *corvina*, dolphin, *denton*, *dorado*, *ispi*, *musie* or flying fish, *pacú*, *ràvalo*, *soyo*, *suruvi*, *suche*, toad, bull, *secubre*, kingfish, eel, *tracaya bruto*, *pirara*, *umanto*, *poriquitinga*, *tambaque*, *pakamon pirarocú*, *pokamu*, *sandia*, *quimala*, *matrinchen jataruga*, *bufeo acuático*.

There are, besides, turtles, *tracaya*, crocodile, caiman, *guataqui*, which is a species of lizard that runs on the water.

REPTILES.—The rattlesnake, anaconda or acuatic boa, *muyntunca*, *escuerso*, *sucurucú*, frog, lizards of many classes.

INSECTS.—There are scorpions, spiders, mosquitos, wasps, *cienpies*, *sancudos*, beetles, bed-bugs, ants, fleas, crickets, silk-worms, horseflies and an infinity of flies of every species that in the forests and near the rivers and other inland waters, are very troublesome.

There are, also, found multitudes of butterflies that divert the eye during the day, and an infinity of fire-flies that illuminate space during the night.

CHAPTER XVI.

FORM OF GOVERNMENT—ADMINISTRATIVE DIVISION
—HEADS OF DEPARTMENTS—POPULATION OF THE
REPUBLIC.

The Government of Bolivia is republican. Bolivia is a democratic representative Republic. The base of its institutions, their guarantee and all their rights rest upon the separation and independence of the three high powers to which is delegated the sovereignty of the people, to wit: The *Legislative, Executive and Judicial powers*. The *Legislative power* is the house of representatives or national assembly, elected by the direct suffrage of the people; it is empowered to make the laws. The *Executive power* is composed of the President of the Republic and four ministers of state, which are: Minister of State, Justice and Foreign Affairs; of Finances, Religious and Public Instruction, and of War, besides all the political agents and authorities, civil and military, that are charged with the administration of the departments. The *Judicial power* is charged with the application of the laws, and with the realization of the principle of right.

The fundamental and political principles of Bolivia are:

“Guarantee for the security of individuals and property, and equality before the law.

"There is no human power over the conscience.

"Slavery is not known in Bolivia.

"Nobody can be judged or condemned except by the tribunals created by law anterior to the action to be judged.

"The liberty of thought through the press is recognized.

"Capital punishment is only reserved for assassins, paracides and traitors to the nation, treachery to the nation being understood to mean connivance with exterior enemies of the country in time of war.

"Every Bolivian who has a determined rent, and the age of 21 years, is in the exercise and enjoyment of civil and political rights, save the pains dependant upon them."

The territory of the Republic, in the administrative order, is found divided in nine departments. Each one of these departments has a political and administrative authority.

The departments are divided into provinces or sub-prefectures, and these into cantons whose political and administrative authorities are known by the name of mayors.

The departments with their capitals, are the following: Littoral of Atacama, capital *Cobija*; Cochabamba, capital *Cochabamba*; Beni, capital *Trinidad*; Paz de Ayacucho, capital, *La Paz*; Oruro, capital, *Oruro*; Chuquisaca, capital *Sucre*; Potosí, capital *Potosí*; Santa Cruz de la Sierra, capital *Santa Cruz*; Tarija, capital *Tarija*.

The superior governments of the departments is vested in a prefect, appointed by the President of the Republic, and removable at his will.

The prefects are charged with the administration and the vigilance of the subaltern employees; their functions extend to the vigilance of the sections of government and finances of which they are, in the departments, the superintendents of police and war. The last named attributes are immediately dependant upon the government.

The sub-prefects, in their administrative acts, are dependent upon the prefects, and the mayors on the sub-prefects.

According to the calculations of *Senores Ondarza and Mujai*, the population of Bolivia, ascended to 1,987,352 inhabitants, and according to the official census of 1854, the total population, including the wandering population of the East, of the *Mojos* and *Chiquitos*, etc., ascended to 2,326,126 souls. This last cipher is the most exact.

According to the calculations of *Dalence*, in his statistics of Bolivia, the nearest approximation to the truth of the annual movement of the population, leaving out the fractions, is about an augment of one for every 26 souls, and a death for every 3^d or, which is the same, the average of one for every 59. This movement, in the year 1846, was presented in this manner:

Population in 1846.....	1,876,897	souls.
Marriages during the year.....	12,005	
Births " " 	62,439	
Deaths " " 	43,757	
Augment " " 	18,682	

But it is necessary to add that the progression of the augment is geometrical; that is to say, that the 18,682 souls have to multiply and contribute to the augment of the population of the following year, as in compound interest; that is, always in increasing progression. Now then, using this proportion, following the movement of the population, by periods of five years, to neutralize the impediments of the reproduction, we have in 1854, 2,326,126 souls; in 1858, 2,363,644. This same proportion in 1868, gives 2,573,696 inhabitants approximately, resulting in an

Absolute population 2,573,696 inhabitants.

Relative " 50 inhabitants to the square league.

In the augment of the population, it is noted that more females are born than males, and the same occurs in the deaths, particularly among the married, as there are many more widows than widowers, which is in opposition to the advancement of the population, and also the reverse of what happens in other parts. The departments of Bolivia, with respect to their inhabitants, are multiplied in a different manner. The fecundity and increase of the population are greater in *Tarija*, *Santa Cruz*, *Cocha-*

bamba, *Cinti*, *Sucre* and others, than in *Potosí* *Oruro* and other cold regions where the human fecundity, on account of the temperature, is less considerable. Finally, I should remark that the marriages are more numerous in the country than in the cities; because, while in the cities the luxuries and fictitious necessities augment from day to day, and in the same population the means to satisfy them diminishes, the riches concentrating in a few hands, nothing of the kind happens in the country.

CHAPTER XVII.

CLIMATE OF BOLIVIA—SITUATION OF ITS TERRITORY
SIZE—CELEBRATED THERMAL WATERS OR HOT
SPRINGS.

The climate of Bolivia, is one of the most beautiful and healthy tropical climates in the world. The variations of its surface, causes varieties of temperature, and products in terms that embrace those of all the inhabitable parts of the globe. The spectator, situated at the foot of a mountain, where he is surrounded by the most delicious tropical fruits, can raise his eyes to the peaks crowned by the eternal ice, thus embracing in a single glance all the grades in the scale of vegetation in the world. Beginning with the *Chirimoyo*, the pine apple, the

orange and the vanilla that perfume the air with their fragrance, the traveller as he ascends finds forests of olives, peaches, pears, apples and other fruits which belong to the torrid and temperate zones. He soon reaches the frigid, in his ascension, and crossing it in all its grades, arrives at the peaks covered with snow and beautified with the *musgo* and *liquen* of the polar regions.

Senor José Maria Dalence describes the climate of Bolivia, in general, as follows: "the territory of the Republic being collocated in the torrid zone, except a small space of its meridional part, the ordinary course of the seasons do not follow in the same order that they observe in the points outside of the tropics, for which reason cannot be applied to them the names of spring, summer, autumn and winter, as in Europe. The rains generally commence in November, and finish at the beginning of March; that is to say, they fall during the time that the sun passes through our zenith. Some years they are forward, and in others backward, continuing until the end of March. When the rain comes early, they are ordinarily scarce in February. In March and April, a mild heat is experienced, tempered by the humidity of the atmosphere, just enough to mature the crops. May, June and July, is the coldest time, and which, as occurs with the rains, sometimes begins earlier and sometimes later. From August to November, is the time of the greatest heat, even in the mountains. The regular winds that agitate

and purify the atmosphere, come in July and August, and in some years continue till the middle of September. Snow storms are not periodical in Bolivia; they fall indistinctly in the months of May, June and July, and there are years in which instead of snow only partial showers of rain are known. The same may be said of hail, which often falls at the beginning or end of the heavy rains. The department of *Chuquisaca*, and particularly its rich and beautiful valley of *Cinti*, is subject to this plague which occasions very serious injury to the vineyards."

What is said above, should be understood to have reference to the high part of Bolivia, because in the Oriental grades of the *Cordillera Real* and the plains, all of which is classified under the name of *Yungas*, there are no frosts, there is no cold felt, and it rains almost all the year. To these precious advantages are indebted the great harvests of sugar cane, the three or four harvests yearly that the *Cocales* yield, and that those corpulent trees are never parched with heat. The Republic of Bolivia is, then, mistress of the delightful center of South America, in which nature with a full hand offers all that is useful, great and precious in the torrid and temperate zones.

According to the height of the places above the level of the sea, and their half temperature, there are six different climates distinguished in Bolivia, which are the following:

That of *Yungas*, from the sea level to the approximate height of 5,469 feet, half annual temperature, from 22, 5 to 19, 5: medium 21.0.

That of middle valley, up to 8,115 feet, temperature 19.5 to 16.4; medium 17.9.

That of head of valley, height 9,906 feet, temperature 16.4 to 14.1; medium 15.2.

That of the mountains, at 11,709 feet height, temperature 14.1 to 10.1; medium 12.1.

That of the mountains, at 15,507 feet height, temperature 10.1 to 02.7; medium 06.4.

In the region of perpetual snow, at 28,873 feet height, temperature 2.7 to 0.0; medium 1.8.

The Republic of Bolivia, extends between 60° and 74° longitude west of Paris, and in latitude austral between 70° 30' and 26° 54' in the oriental part, and in the occidental between 70° 30' and 25° 39'.

The territory of the Republic, has a surface of little less than 53,218 square leagues of 17½ to the degree, or 159,654 square miles. Of this surface, three fourths, at least, are uncultivated or unpopulated.

Thermal water, or hot springs, exist in an innumerable number of places in the Republic, running from the rocks with a heat that varies from 20 to 90 degrees. Many of them are found impregnated with hidrosulphuric gas, others with carbonic acid, and even others with magnesia and salts. Baths well know are those of *Caiza* in the district of *Porco*,

Uramiri and *Machacamarcá* in the district of *Páris*, *Colcha* in *Argue*, *Talula* and *Mojotoro* in *Sucre*, *Don Diego* in *Potosí*, and *Putina* in *Munecas*.

CHAPTER XVIII.

DEPARTMENT OF CHUQUISACA — POPULATION — CAPITAL — PROVINCES — MOUNTAINS — RIVERS — ASPECT AND CLIMATE — LIMITS — SIZE.

The department of *Chuquisaca* and its capital are well renowned, for their ancient history as well as for that which refers to the epocha of the independence. Anciently its capital, *Sucre*, was the residence of *Gonzalo Pizarro*. Founded by his order, by *Pedro Ansares*, it was ennobled by the Court of *Charcas*, the mitre and chapter of its cathedral, and by the most eminent men of Spain, among them, Saint Albert, *Matienzo*, *Solorzano*, *Mojó* and others. At the same time *Sucre* was the center of light and the Athens of Perú, for her colleges and universities, having produced *Alejandro Pinto*, *Fracisco Javier de Orihueba* and *Jorje Delgadillo*. In *Sucre*, also, were educated the greater part of those who figured in the epocha of the independence.

POPULATION of the department 360,680 inhabitants.

The capital, *Sucre*, is situated in 19° 8' latitude austral, and 66° 18' longitude west of Paris. Founded in 1535, on the borders of the *Quirpinchacha*, at the height of 9,963 feet above the level of the sea, it was called *Chuquisaca* (*Cuchi-chaca*—Bridge of Gold), and in 1840, it was given the name of *Sucre* in honor of the Grand Marshall of *Ayacucho*, *Antonio José de Sucre*. It contains 30,000 souls, and is the seat of the archbishopric see, the supreme court of justice, a district court, a university with theological, law and medical faculties, a general tribunal, the ordinary national congress, the scientific colleges and a public library.

Provinces.

CERCADO,
YAMPARAES.
CINTI,
TOMINA,
ACERO.

Their Capitals.

SUCRE,
YAMPARAES or YOTOLA,
CAMARGO,
PADILLA,
SAUCES.

MOUNTAINS.—*Liqui* in *Cinti*, *Perna-horca* in *Yamparaes*; *Calvario*, *Fraile* and *Cotari* in *Tomina*; and the *Inca huasi* in *Acero*.

RIVERS.—The department of *Chuquisaca* is limited on the north by the immense flow of the *Guapay*, which empties into the *Amazonas*; and on the south by the *Pilcomayo* which goes to the *Plata*.

ASPECT AND CLIMATE.—The climate of *Chuquisaca* is generally benign and healthy; its mountains, although low, are deserts and have many valleys

that produce sufficient grain and vegetables. Besides, it produces timber for construction and cabinet-work, metals, herds of stock and mines of gold. The province of *Acero* has an aspect very picturesque and pleasing.

LIMITS.—On the north, the departments of *Cochabamba* and *Santa-Cruz*; on the East, *Paraguay* and *Brazil*; on the South, *Tarija* and *Potosí*, and on the west, *Potosí*.

SIZE.—After deducting the oriental plains and other angles, the surface of *Chuquisaca* is 4191 square-miles.

CHAPTER XIX.

DEPARTMENT OF LA PAZ DE AYACUCHO—LIMITS—
SIZE — POPULATION — CAPITAL — PROVINCES —
MOUNTAINS—RIVERS—ASPECT AND CLIMATE.

One of the most thickly populated and richest departments of Bolivia is *La Paz de Ayacucho*, which by its geographic position and proximity to the coast acquires, with its commerce, a mercantile preponderance over the rest of the interior departments. Its population is the most numerous, and its vegetable riches almost as much as that of *Cochabamba*, *Santa Cruz* and *Beni*. Its history is memorable for having given the first cry of independence on 16th of July 1809, forming the *defensive union (junto tuitiva)* to assume the sovereignty of the people. After this step, and during the war of independence, it also made great sacrifices for the nation.

LIMITS.—On the north and east, the department of *Beni*; on the south, *Oruro* and *Cochabamba*; on the west, *Perú*.

SIZE.—It contains a surface of 6711 square miles.

POPULATION of the department, 642,653 inhabitants.

The capital, *La Paz*, is situated in 16° 35' latitude austral, and 71° 10' longitude west of Paris, in an irregular ravine at the height of 12,990 feet above the level of the sea, crossed by the torrent of the

Choquiapo, and founded in 1548 by the last followers of *Pizarro* and *Almagro*. Its climate is frigid, its streets irregular and uneven, and its population is 80,000 souls. Among its notable sights are the famous cathedral, not yet finished, the marble fountains, the theatre, the government palace, the temple of *San Francisco*, the market, the *Alameda* (public promenade), and other works of importance. Besides, it has a university, two colleges of science, numerous establishments of instruction, a court of justice, two tribunals, three courts of common pleas and a public library. Its commerce is the richest and most active of all the Republic.

<i>Provinces.</i>	<i>Their Capitals.</i>
CERCADO.	LA PAZ.
UNION.	LOAIZA.
YUNGAS.	CHULUMANI or LANZA.
CAUPOLICAN.	APOLO.
LARECAJA.	SORATA.

MOUNTAINS.—The most superb peaks and the highest and most beautiful snow-tops of the *Cordillera de los Andes* rise in the department of *La Paz*, to wit:

<i>In Cercado.</i>	{ ILLIMANI.....height 26,247 feet.
	{ MURURATA..... " 22,208 "
<i>In Larecaja.</i>	{ ILLAMPU " 27,636 "
	{ SONGO " 25,830 "

RIVERS.—The *Choquiapo*, *Mapiri*, *Tipuani*, *Challana* and others that form the source of the *Beni*.

The lake *Titicaca* and the *Desaguadero* also belong to this department.

ASPECT AND CLIMATE.—The climate of this department is varied, and in it there is found all possible temperatures. Its territory is crossed by numerous branches of the *Andes*. The valleys of the *Yungas* are strong, ardent and fertile. All the department has mines of gold, silver and other metals; productions, coffee, *coca*, *quinas*, timber, exquisite fruits, stock of all kinds, and on the heights plenty of potatoes, hay and barley.

CHAPTER XX.

DEPARTMENT OF COCHABAMBA—LIMITS—POPULATION — CAPITAL — PROVINCES — MOUNTAINS — RIVERS—PHYSICAL ASPECT AND CLIMATE.

The department of *Cochabamba* is one of the largest, richest and most interesting of the Republic in every respect.

Its history, during the war of independence, makes it notable for enthusiasm and valor, and still more, for its sacrifices and achievements.

In few places in the world is found a greater vegetable richness and fertility, a more benign and lovely climate, fields as animated, and a perspective so brilliant and poetical as this department and its

capital. Travellers and geologists have always called this department *the granary of Bolivia*.

LIMITS.—On the North, the department of *Beni*; on the East, *Santa Cruz*; on the South, those of *Chuquisaca*, *Potosí* and *Oruro*; and on the West, *Oruro* and *La Paz*.

POPULATION of the department, 450,346 inhabitants.

The capital, *Cochabamba*, was founded on the banks of the river *Rocha* in 1572, in 17° 23' latitude austral and 68° 4' longitude west of Paris. This city is dominated on the West and North by the beautiful snow-capped *Tunari*, which elevates itself 16,566 feet above the level of the sea. It is surrounded on the East by the *Muyurina* mills and gardens, and the celebrated *Granja* country-seat; on the north by the fecund *Rocha* and the beautiful plantation of *Calacusa*, which extends between the brow of the *Tunari*, the river and the city, forming a strip of more than two and a half leagues of forest from east to west; on the west, by the *Rocha*, and on the south by the canton of *Itocta*.

The aspect of the city is beautiful; its streets are straight, wide and clean; its air pure and healthy; its houses and other edifices are elegant, new and of good architectural taste. It is the only city in Bolivia that has streets both level and straight. Among its notable sights, may be counted, the fountain of cut stone in the centre of the principal

square, the cathedral, the government palace, two monasteries, a convent, a new hospital, eight temples and a theatre.

Its population is 40,000 souls. Among the institutions established in the capital are found : a district court, a tribunal, three courts of common pleas, the university of *San Simon*, the prefecture, the bishopric, two colleges, that of sciences and that of the scholars of *San Alberto*, a poor-house, a hospital, a house of the Sisters of Charity, more than forty establishments of common instruction and a public library.

<i>Provinces.</i>	<i>Their Capitals.</i>
CERCADO.	COCHABAMBA.
CHAPARE.	SACABA.
ARQUE.	ARQUE.
TAPACARI.	QUILLACOLLO.
HAYAPAYA.	INDEPENDENCIA.
INQUISIVI.	INQUISIVI.

MOUNTAINS.—Of the *Cordilleras* that run through this department, the most elevated peak is the snow-capped *Tunari*, which is two leagues and a half from the city.

RIVERS.—All the waters from *Cochabamba* flow to the *Amazonas* through three principal conductors that empty into the *Madera*, namely: the *Guapay* or *Rio Grande*, the *Chaparé* and the *Catacajes*. The *Guapay* is augmented by the rivers of *Tapacari*, *Arque*, *Chayanta*, *Mizque* and others. The *Chaparé* by the streams that run from the *Calami* hills, called

San Mateo, Paracti and others. The *Catacajes* by the rivers *Hayapaya, Santa Rosa, Vilcota, Lambaya* and others. The *Rocha* is a river that only has water from the first days of December until the last of July and August; it is formed by the streams *Arocahua, Chimbaco, Labalaba, Molino blanco, Loromayo*, and by the rains.

PHYSICAL ASPECT AND CLIMATE.—The department of *Cochabamba* is generally of an agreeable and picturesque aspect. The fertility is extraordinary and inexhaustible; its vegetable riches are the greatest in the Republic; its lovely forests of *Espíritu Santo, Chaparé* and *Coranieta* produce timber, cacao, coca, coffee, cotton, tobacco, rice, pineapples, and a multitude of exquisite fruits and medicinal herbs. In the valleys of *Mizque, Cochabamba, Chiza* and others, there are exorbitant productions of wheat, corn, potatoes, barley, pot-herbs, plants of every species, and the most delicate and exquisite fruits, such as peaches, apples, oranges, pears, grapes, with a great variety of each of them. Nothing can be desired that is not to be found among the natural products, or that this fruitful department will not produce; finally, everything is bountiful and beautiful in the three kingdoms, mineral, vegetable and animal.

CHAPTER XXI.

DEPARTMENT OF POTOSÍ—LIMITS—POPULATION—
SIZE—CAPITAL—PROVINCES—MOUNTAINS—RIVERS
—ASPECT AND CLIMATE.

The department of *Potosí* is celebrated for its immense mineral riches, its very elevated physical position, where, the same as in *Atacama*, are raised the most beautiful *vicunas*, *chinchillas* and an abundance of wool stock. In the province of *Lipez* there are many mines where have been found topazes, emeralds, opals, jaspers and other precious stones, marble of different colors, gold, silver and other metals, and the same also in the rest of the provinces.

LIMITS.—On the North, the department of *Oruro* and the provinces of *Paria*, *Arque* and *Mizque*; on the East, the departments of *Chuquisaca* and *Tarija*; on the South, the Argentine Republic; on the west, *Atacuma* and *Perú*.

POPULATION of the department, 294,258 inhabitants.

SIZE—3,786 square miles.

The capital, *Potosí*, is in 19° 35' latitude austral, and 67° 49' longitude west of Paris. It is situated upon the mountain of the same name at the height of 14,580 feet above the level of the sea, and is the only city in the world at that elevation. It is celebrated, also, for the proverbial richness of its

mountain, for its large Mint, which cost \$1,148,000. and its frigid climate. It has a district court, a tribunal, a national college and a public library. Its population is 27,693 souls.

Provinces.

CERCADO.

PORCO.

CHICHAS.

SUD ó NORTE.

CHAYANTA

LIPEZ.

Their Capitals.

POTOSÍ.

TALABERA DE LA PUNA.

TUPIZA.

COTAGAITA.

CHAYANTA.

SAN CRISTÓBAL.

MOUNTAINS.—In the department of *Potosí* are seen the snow-capped *Chorolque* in the province of *Chichas*, the *Potosí* in *Cercado*, and the *Aullagas* in *Chayanta*.

RIVERS.—In the provinces of *Lipez*, *Chichas* and *Porco* are found the springs that form the *Pilcomayo*; and in *Chayanta* the head waters of the *Rio Grande* or *Guapai*. In the same manner the *Pilaya*, formed from the *Cotagaita*, the *Tumusla*, the *Suipacha* and others, bathe the department of *Potosí*, afterwards joining the *Pilcomayo*.

ASPECT AND CLIMATE.—The department of *Potosí* is not suitable for vegetable productions. Its lands are gravelly and mountainous; but, in the mineral kingdom, it would be difficult to find a richer region. The climate is generally cold, but healthy, and does not impede the production of sufficient pasture for the herds, potatoes, *quinoa*, *guinapo*, and even garden vegetables and fruits in some ravines and small valleys.

CHAPTER XXII.

DEPARTMENT OF SANTA CRUZ DE LA SIERRA—LIMITS
—SIZE—POPULATION—CAPITAL—PROVINCES—
MOUNTAINS—RIVERS—ASPECT AND CLIMATE.

The department of *Santa Cruz de la Sierra* is celebrated for its ancient splendor and for the fertility of its forests, which have given it the name of the *promised land*. To-day, the want of an active commerce, and of commodious means of communication, have isolated it, and it is now in *statu quo*. Notwithstanding, its vegetable richness, the industry of its inhabitants and the navigation of the river *Madera*, makes it expect a most prosperous future.

LIMITS.—On the North, the department of *Beni* and Brazil; on the East, Brazil; on the South, *Chuquisaca*; and on the West, *Cochabamba*.

SIZE—27,195 square miles.

POPULATION of the department, 200,500 inhabitants.

The capital, *Santa Cruz*, was founded in 1557 in 17° 12' latitude meridional, and 67° longitude west. It is situated on the plains of *Parí*, and surrounded on the north, east and west by immense forests. Its streets are sandy and very incommodious for traffic, but they are straight and wide, giving free course to a multitude of carts; the temperature is hot and suffocating, and at the same time humid; its customs

simple and natural. Education is very little advanced, for want of establishments in a country that possesses few resources. Its population is 12,023 souls, and it has a court of justice, a tribunal, a college of sciences, a college of scholars and several private establishments, a court of common pleas and a public library. The construction of its beautiful cathedral is paralyzed for want of funds. *Santa Cruz* is almost the only place where sugar is manufactured, and it supplies the Republic with sole-leather and other articles.

<i>Provinces.</i>	<i>Their Capitals.</i>
CERCADO.	SANTA CRUZ.
VALLE-GRANDE.	VALLE-GEANDE.
GUTIERREZ or CORDILLERA.	GUTIERREZ.
VELASCO.	SAN JAVIER.
PRADO.	SAN JOSÉ.

MOUNTAINS.—This department has not many mountains, and what there are hardly reach the height of 300 or 500 feet, for which reason frequent inundations of its rivers occur.

RIVERS.—The *Guapay*, the *Piray* which passes one league from the capital, the *San Miguel* and others that empty into the river *Madera*.

ASPECT AND CLIMATE.—The oriental and septentrional part of the department show the most sublime spectacle of the majesty of nature, for the fecundity of the soil, the gigantic vegetation and the immense waters of its rivers, which carry with them

sands of gold. The products consist of sugar, cacao, coffee, rice, vanilla, tobacco, fruits, sole-leather, timber, medical herbs and thousands of unknown plants. The cattle multiply infinitely. The climate is ardent and humid, which causes fevers and epidemics to spread frequently.

CHAPTER XXIII.

DEPARTMENT OF ORURO—LIMITS—SIZE—POPULATION — CAPITAL — PROVINCES — MOUNTAINS — RIVERS—ASPECT AND CLIMATE.

The department of *Oruro*, situated on the grand table-land of the same name, is celebrated for its great mineral richness, and besides for its great quantity of sheep and *llamas*. *Oruro* was one of the places that contributed, in a great degree, towards the independence of Bolivia.

LIMITS.—On the North, the department of *La Paz*; on the East, *Tarija* and *Potosi*; on the south, *Potosi*; and on the West, *Perú*.

SIZE.—3,821 square miles.

POPULATION of the department, 168,980 inhabitants.

The capital, *Oruro*, situated on a plain at the height of 13,272 feet above the level of the sea, four and a half leagues from the *Desaguadero*, in 17° 57'

latitude meridional and 68° 4' longitude west of Paris. The city is small, and its temperature, although cold, is healthy, but water, vegetables, garden plants and vegetation are extremely scarce. Its population is 10,450 souls. It has a district court, a government palace, a tribunal, a court of common pleas, a college of sciences, a college of scholars, several establishments of instruction and a public library.

Provinces.

Their Capitals.

CERCADO.

ORURO.

POOPÓ or PARIA.

POOPÓ.

CARANGAS.

CORQUE.

MOUNTAINS.—The principal ones in *Oruro* are the mountains of *Carangas*, where are to be seen the peaks of the *Sajama*, *Coropa* and *Tatazabaya*.

RIVERS.—The *Desaguadero*, which, coming from lake *Titicaca*, and augmented by the *Mauri*, crosses the provinces of *Ingari*, *Sicasica*, *Carangas* and *Paria* and empties into lake *Poopó*, and from which it takes its exit subterraneously to other lakes. It is navigable in the whole of its extension.

ASPECT AND CLIMATE.—As its height is over 13,000 feet above the level of the sea, the climate is too frigid, and the soil is not adaptable to agriculture, only for producing in some places potatoes, pasture, quinoa, guinapo and very few garden plants. The aspect of the country is arid and dry, and embraces great deserts that extend for more than 120 miles. All its richness is mineral.

CHAPTER XXIV.

DEPARTMENT OF TARIJA—LIMITS—SIZE—POPULATION—CAPITAL—PROVINCES—RIVERS—ASPECT AND CLIMATE.

The department of *Tarija* forms to-day one of the fractions most notable of Bolivia, for the fertility of its soil, the benignity of its sky and for the deposits of enormous fossil bones that are found in its district, such as *canillas* (principal bone of a fowl) a yard and a half long, teeth weighing from five to six pounds, and enormous skeletons which the vulgar have judged to be of giants. Outside of these notabilities, it has others of its natural richness.

LIMITS.—On the North, the department of *Chuquisaca*; on the East, *Paraguay*; on the South, the Argentine Republic; and on the West, *Potosí*.

SIZE.—The surface is 4,587 square miles.

POPULATION of the department, 140,429 inhabitants.

The capital, *Tarija*, with 8,280 inhabitants, is situated in 21° 34' latitude austral and 67° longitude west of Paris.

Provinces.

CERCADO.

CONCEPCION.

SALINAS.

Their Capitals.

TARIJA.

CONCEPCION.

SALINAS.

RIVERS.—The *Pilaya* or *San Juan*, the *San Lorenzo*, the *Bermejo* or *Tarija*, and the *Pilcomayo* water the department of *Tarija*.

ASPECT AND CLIMATE.—The department presents, in the populated part, a multitude of hills, rocks and precipices, but, intersected with wide and long valleys of an extraordinary fertility. The oriental part, which is unpopulated, consists of the plains of *Manzo*, which embrace an immense extent of pasturing grounds. The climate is genial, and the soil offers both mineral and vegetable richness.

CHAPTER XXV.

DEPARTMENT OF BENI—LIMITS—SIZE—POPULATION
—CAPITAL—PROVINCES—MOUNTAINS—RIVERS—
PHYSICAL ASPECT AND CLIMATE.

The extensive and exceedingly fertile department of *Beni*, is crossed by the largest rivers in the Republic.

Beni signifies wind, in the *Tacana* tongue.

LIMITS.—On the North and East, the Empire of Brazil; on the South, *Santa Cruz* and *Cochabamba*; on the West, *Perú* and *La Paz*.

SIZE.—Its surface, counting only the part cultivable, 2,874 square miles.

POPULATION of the department, 65,364 inhabitants.

The capital, *Trinidad*, with 6,800 souls, is situated on the oriental border of the river *Mamoré* in 14° 10' latitude austral and 69° longitude west of Paris. It has a tribunal and some establishments of instruction. The future of this capital, and its perspective greatness when its rivers are navigated, are superior to anything that the other departments of Bolivia can expect.

Provinces.

MOJOS.

YURACAREZ.

Their Capitals.

EXALTACION.

ISIBORO.

MOUNTAINS.—The ridges of *Mocetones* and *Chacobos*, which are very low.

RIVERS.—The *Mamoré*, formed by the *Sara* and *Piray* and others; the *Guapay*, the *Chaparé* and *Secure*, which, with others such as the *Apere*, *Yucuma* and others go to the *Amazonas* through the *Madera*. The depth of the *Mamoré* is never less than sixteen feet, and consequently is navigable. From the point of union of this river with the *Itenes* and the *Bini*, begin the seventeen famous cataracts commonly called *cachuelas*. All of them, except one, have lateral canals that can annul the difficulties of navigation, and that which has none can be avoided by opening one around the hill, the circuit of which does not exceed four hundred yards.

PHYSICAL ASPECT AND CLIMATE.—The department

of *Beni*, in its vast extension, presents different aspects and important climates. It produces, without the necessity of man's cultivation, articles such as cacao, vanilla, sarsaparilla, timber for construction, medicinal herbs, multitudes of exquisite and variegated fruits, and innumerable herds of cattle. This soil, of a wonderful fertility, could itself alone feed ten times the population of Bolivia, as its harvests of rice, cacao, corn and others take place four times a year in the virgin forest without being cultivated by the hand of man, and are appropriated by the monkeys and other wild animals. Some of the *Mojos* regions are too ardent and humid.

CHAPTER XXVI.

DISTANCES BETWEEN SOME OF THE CAPITALS—
DISTANCES TO THE FRONTIERS—DISTANCE FROM
LA PAZ TO TACNA AND INTERMEDIATE POINTS—
MAILS OF BOLIVIA—NEWSPAPERS—PUBLIC LI-
BRARIES—ARMY.

The following tables, showing the distances (in miles) between the principal cities of Bolivia, and also the proximity of her frontiers, will be found of great value to traders, travellers and the public generally.

Distances between some of the Capitals.

CITIES.	Potosi.	Tarija.	Cobija.	Santa Cruz.	Oruro.	La Paz.	Cochabamba.	Trinidad.*
Sucre	87	264	561	372	225	372	195	942
Potosi.....	...	246	474	459	195	342	272	929
Tarija.....	246	...	†588	636	441	588	459	1206
Cobija.....	474	588	...	933	552	699	675	1503
Santa Cruz.....	459	636	933	...	480	627	357	570
Oruro.....	195	441	552	480	...	147	123	1050
La Paz.....	342	588	699	627	147	...	270	1197
Cochabamba	272	459	675	357	123	270	...	927

* By way of Santa Cruz.

† By way of Tupiza.

Distances to the Frontiers.

FROM SUCRE.

To the frontier of Perú, by La Paz.....	435 miles.
" " Chile, by land.....	819 "
" " Argentine Republic.....	312 "
" " Brazil, by Chiquitos.....	720 "
" " " Northward.....	1179 "
" " Paraguay.....	750 "

Distance from La Paz (capital of the Republic) to Tacna (Perú) and Intermediate Points.

			MILES.
From La Paz to Viacha	village.....		18
" thence Tambillo	post.....		12—30
" " Nazacara.....			27—57
" " San Andres	village.....		15—72
" " Santiago	do.....		18—90
" " Chulluncayani	post.....		18—108
" " Maure	do.....		18—126
" " Ancomarca	do.....		18—144
" " Uchusuma	do.....		6—150
" " Tacora	do.....		18—168
" " Huavullas	do.....		12—180
" " Palca.....			12—192
" " San Francisco	post.....		18—210
" " Pachla	do.....		6—216
" " Tacna	do.....		6—222

Mails of Bolivia.

ARRIVE AT LA PAZ.

	Of each month.
From the interior.....	7, 15, 23 and 30
" Tacna.....	5, 14, 22 and 29
" Puno.....	14 and 28
" Yungas.....	2, 10, 17 and 24
" Caupolican.....	2 and 17

LEAVE LA PAZ.

For the interior.....	1, 9, 17 and 25
" Tacna.....	7, 16, 23 and 30 or 31
" Puno.....	9 and 23
" Yungas.....	3, 10, 18 and 25
" Caupolican.....	3 and 18

All the mails for the interior, and for Tacna, carry parcels.

Newspapers.

The movement of the Bolivian press, since the establishing of printing in the country in 1825, up to 1871, is the following:

In the Department of

La Paz.....	110
Chuquisaca.....	80
Cochabamba.....	38
Potosí.....	25
Oruro.....	9
Santa Cruz.....	2
Cobija.....	2
Beni.....	1
	267

The result of the foregoing is, that from the year 1825 to 1871, 267 publications have been issued, including in their number Daily and Weekly newspapers and Reviews.

The average of the numbers that have been published is over forty, without taking into consideration various newspapers of long standing, such as *La Epoca*, which has been published in La Paz for over sixteen years.

The first newspaper published in Bolivia was *El Cóndor* in 1826.

Public Libraries.

There exists in the Republic six public libraries, all under the charge of one general director.

According to the latest official reports, they contain more than 16,000 volumes, distributed in the following manner:

In La Paz	4,500
" Sucre	8,000
" Cochabamba	3,420
" Santa Cruz	240
" Oruro	300
" Potosí	100
	16,560

Army.

The actual army of Bolivia consists of 1,336 soldiers, 248 officers and an inspector-general, with an appropriation of 48,636 dollars per month.

The different garrisons, located in the departments, consist of 456 men and 47 officers, with an actual appropriation of 11,688 dollars per month.

CHAPTER XXVII.

LIMITS OF THE REPUBLIC—HIGHEST MOUNTAIN
PEAKS—MOUNTAINS—HIGH TABLE-LAND—RIVERS
—COAST—LAKES.

According to the last limit-treaties celebrated with the Republic of Chile and the Empire of Brazil, the limits of Bolivia with these nations are as follows :

The Republic of Bolivia is bounded on the North-east by Brazil and Paraguay. From the point of union of the rivers *Bermejo* and *Paraguay*, NORTHWARD to *Bahia Negra*, it is bounded by the Republic of Paraguay, and by Brazil farther north in the following manner : Starting from *Bahia Negra*, which is formed by the river Paraguay in lat. $20^{\circ} 10'$, the boundary goes in a straight line through the middle of the lakes *Cáceres*, *Gaiba* and *Uberaba* ; from the extreme northern part of lake *Uberaba* it runs in a direct line to the southern extreme of *Corijagrande*, from thence to *Buena Vista* ; from here to the point of union of the rivers *Rio Verde* and *Guaporé*, and then following the last named and the river *Mamoré* to the *Madera* ; and lastly, from thence to the height of lat. $10^{\circ} 20'$ north, the frontier is the direct parallel line to the *Yaraví* ; the foregoing is according to the treaty, celebrated the 27th of May, 1867. EAST-

WARD, it is bounded by Perú, by an imaginary line which bounds the Canton of *Copacabana* with *Yunguyo*, and dividing lake *Titicaca*, passes through sure limits to the river *Loa*, which on the Pacific coast separates the Republic of Perú from that of Bolivia up to $21^{\circ} 27'$ lat. austral. SOUTHWARD, it is bounded by Chile in the parallel 24° of latitude meridional, from the Pacific Ocean to the limits of that Republic, according to the treaty celebrated the 20th of August, 1866; the rest of its southern limit is the river *Bermejo*, which is the boundary line between Bolivia and the Argentine Republic. WESTWARD Bolivia is bounded by the Pacific Ocean.

Highest Mountain Peaks.

The highest peaks of the Bolivian part of the Andes, are: the *Illampu*, 27,626 feet above its granite base, and the *Illimani* 26,271 feet, both in the Department of La Paz. After these, the *Huayna-Potosí*, 23,785 feet; the *Murata*, 22,194 feet; the *Sunchullin*, 19,950 feet; the *Sajama*, 24,507 feet; the *Coololo*, a knot of the *Apolobamba*, 24,320 feet; the *Chachacamani*, 23,460 feet; the *Callinsayani*, 22,316 feet; the *Tres Cruces*, 19,800 feet; the *Canouma*, 19,100 feet; the *Chorolque*, 19,600 feet; the *Potosí*, 14,092 feet; the *Tunari*, 16,566 feet.

Among the great mountains of Bolivia, the forest-clad *Uchumachi* is worthy of note; it is 8,325 feet high, and the value of its vegetable productions, it is said, exceed the product of the mines of Potosí.

Mountains.

The *Cordillera de los Andes* divides itself in the southwest of the Republic, between 21° and 22° latitude south, in two systems (or ridges), the first called the Exterior Cordillera, and the other, which is composed of many branches, called the Interior, or *Cordillera Real*. The two lines unite again towards the north in lat. $14^{\circ} 35'$ south, and long. $73^{\circ} 40'$ west of Paris in the knot of Apolobamba. In the boreal part of the Exterior Cordillera, the following mountains are distinguished for their height and perpetual snow: The *Tacora* and *Tatasavaya*, the *Pomorapi* and *Parinocacha*, the *Guallatiri*, the *Iquimo*, the *Toroni*, the *Yabricoya*, and the volcanoes *Sajama* and *Isluya*.

From latitude 21° the Exterior Cordillera, widening in an easterly direction, also presents numerous snow-clad peaks, such as the *Aucasquilcha*, in lat. $21^{\circ} 16'$ and long. $70^{\circ} 40'$, and the *Tapaquilcha*, in lat. $21^{\circ} 35'$ and long. $70^{\circ} 80'$; the other notable mountains of this part are the *Quilacoit*, the *Chivano*, the *Talapalca*, the *Chila*, the *San Pedro*, the *Napa*, the *Ollagua*, the *Olca*, and the *Tica*, the last three of which are volcanoes whose craters never cease to send forth columns of smoke.

The branch which towards the southwest joins the *Cordillera Real* with the Andes, is called the *Cordillera de Lipez*, and is principally composed of snow-capped peaks, such as the *Todos Santos*, the *Nuevo-*

Mundo, the *Lipez*, the *Jaquagua*, the *Guadelupe*, the *Bonete*, and others.

In latitude 22° the *Cordillera Real* forms a knot, the centre of which is in *Chorolque* mountain, and from which the *Chocaya* branches, *Tasnu* and *Ubina*, (*Cordillera de Chichas*) run parallel northward, and reuniting at latitude 20° in the *Guasaco* fissure (one of the highest gaps in the world) continue in one chain called the *Frailes*, up to latitude 19°. From thence it is called *Cordillera de los Azanaques*, and again dividing itself in five branches at latitude 70° 36', finally becomes the *Illimani* by means of the branch called the *Cordillera de Quinsa Cruz*. Eastward of the *Cordillera de los Frailes*, a continuation of the *Chichas* mountains, the *Cordillera Real* forms the knot of *Potosí* and *Porco*, which is the centre of the mountains of same name, and also of those of *Chayanta*.

The other principal branches of the Interior Cordillera, are the Cordillera of *Caipa* and *Liqui*, the Cordilleras of *Taxara*, *Tarachaca*, *Sombreros* and *Yacambe*, and lastly, towards the southeast, that of *Caiza*. From the knot of *Cochabamba*, (including the snow-capped *Tunari*,) communicating with the above named knot and mountains of *Chayanta*, extend the hills of *Mosetenes*, those of the provinces of *Mizque* and *Vallegrande* to *Santa Cruz de la Sierra*, and from this knot the *Cordillera Real* runs towards the northwest to again link itself by means of the snow-capped *Quinsa-Cruz* or *Tres Cruces*, *Illimani*,

Cururata, Huayna-Potosi, Zongo, Illampu, or Sorata, Chunchulli, Caverani, and many others, with the Apolobamba group.

High Table-Land.

The two ranges of the Exterior Cordillera and the *Cordillera Real*, enclose between latitudes 16° and 22° south and longitude 69° and 71° west, and at a height of 13,272 feet above the level of the sea (according to several barometrical observations made by Reck, the Bolivian Government Engineer), the great high table-land of *Oruro*, which is only interrupted by a few scattering hills. Its extension from north to south is 521 miles, and its medium width from east to west 80 miles, making a total of 41,680 square miles, including the space occupied by the few hills which will be about 15,887 square miles, leaving a perfectly level plain of 25,793 square miles. The septentrional part encloses the rich deposits of silver and copper of *Corocoro* and *Carangas*, and the meridional part is found covered by a solid layer of salt over an extension of 4,845 square miles.

Rivers.

Numerous rivers, the most voluminous and the most important tributaries of the *Amazonas* and the *Plata*, cross the Bolivian territory, offering, with their fresh waters, the fecundity of the soil, and with their powerful depths, an easy and profitable navigation.

The affluents of the *Amazonas* are the *Rio Grande* or *Cacá*, the *Beni*, whose head waters partly descend from the waters of Cochabamba, its tributaries being (beginning at the North) the *Madidi*, the *Taquexe*, the *Tuichi*, the *Mapiri*, the *Tipuani*, the *Challana*, the *Coroico*, the *Rio de la Paz*, the *Cotacajes*, the *Altamachi*, and others. All these run towards the *Beni* from S.W. to N.E. and from S. to N., while it (the *Beni*) empties itself into the *Madera* in lat. $10^{\circ} 30'$ S. and long. $68^{\circ} 40'$ W. Many of these rivers which form the *Beni* are navigable for more or less distances from La Paz, and among them the river *Coroico*, from the town of same name; the *Mamoré*, the affluents of which, descending from the most central part of the country, with a deep bed and gentle current, appears to be the most adaptable to serve as a vehicle to carry out the rich and varied productions of the Republic, and especially those of the departments of Beni and Cochabamba. The tributaries of the *Mamoré* are, counting from N. to S.: the *Zacuma*, the *Apere*, the *Tijamuchi*, the *Securi*, the *Chaperé*, the *Chimoré*, the *Chapacani*, the *Pirai* and the *Guapai* or *Rio Grande*, almost all of them being navigable until very near their origin. The most interesting of them are the *Securi*, which falls from the boreal declivities of the *Cordillera de Cochabamba*, and enters in the *Mamoré* near the city of Trinidad, capital of the department of Beni; the *Pirai* and the *Rio Grande*, which pass at a very short distance from the city of Santa Cruz, the last named after having described in

its course an immense semicircle and crossed the road which leads from Sucre to Cochabamba; the *Itenes* or *Guaporé*, which separates Bolivia on the N.E. from Brazil, and whose tributaries are the *Machupo*, the *Itomana* or *San Miguel*, the *Rio Blanco* or *Baúres*, the *Varagua* and others.

The union of the Mamoré with the Itenes takes place in lat. $11^{\circ} 30'$ S. and long. 68° W. Both of these, united with the Beni, form the Madera, one of the most voluminous branches of the Amazonas.

The affluents of the Plata River are: the *Pilcomayo*, formed from the *Cachimayo* *Pilaya* and others, and which runs through the plains from N.W. to S.E., leaving the central *Chaco* to the right and the *Coreal* to the left; the *Bermejo*, formed from the *Tarija* river and others, running parallel to the first; the *Paraguay*, descending from N. to S., which touches Bolivian territory in Jaurú, in lat. $16^{\circ} 15'$ S. and long $60^{\circ} 15'$ W., and from this point serves as a boundary line between Brazil and the Republic of Paraguay, receives the waters of the Pilcomayo in lat. $25^{\circ} 30'$ and long. $59^{\circ} 60'$ W., in front of the city of Asuncion, capital of Paraguay, and those of the Bermejo farther down, in lat. 27° and long. 60° . This last named river forms the southern limit of the oriental part of the Republic.

The result shows that all the navigable rivers and others of any size, that descend from Bolivia, are tributaries of the Atlantic Ocean; while among the few that flow towards the Pacific, only two are

worthy of mention, and not for the volume of water they carry but because they serve as boundary lines to the country on the Western borders; the first is the river *Loa*, which, rising in the immediations of Calama, divides the department of Cobija from the Peruvian province of Tarapachá, and the second is the river *Salado*, which separates the same department from the Chilian province of Atacama in lat. $25^{\circ} 39'$ on the coast and lat. $27^{\circ} 38'$ in the interior.

The *Desaguadero* flows from the Titicaca, and, augmented by the *Maure* and other streams, crosses the provinces of Pacajes, Sicasica and Cercado in Oruro, and after a course of more than 240 miles it empties into the Poopó or Pampa-Aullagas lake. Leaving this subterraneously, it terminates in the Copaiva. The volume of water that enters the Poopó from this river, according to Reck's calculations, is 6,242 cubic yards per minute. The river is navigable.

Coast.

The coast of Bolivia extends from the mouth of the river *Loa*, which separates it on the North from Perú, to latitude 24 degrees South, which is its boundary line with the Republic of Chile. The Pacific coast of Bolivia embraces an extension of 289 miles, within which are situated the ports of *Tocopilla*, *Cobija*, *Mojillones* and *Antofagasta*. The land on the coast is extremely barren and arid, and water is only to be found in Cobija, and there it is very scarce and of inferior quality.

Lakes.

There are several lakes in Bolivia, but the principal ones are on the high tableland of Oruro; the *Chicuito* or *Titicaca*, the largest lake in South America, and one-half of which belongs to Bolivia, has a surface of 5,212 square miles, and is 13,864 feet above the level of the sea. In its centre is the memorable Island of the Sun, from whence came the first *Incas* to civilize the Peruvian empire.

The lake called *Pampa-Aullagas* or *Poopó*, in the province of Paria, has a surface of 1,745 square miles, with the island of *Panza* in the middle, and another island recently discovered called *Filomena*.

Another lake, in Beni, the *Rogoaguado*, is at a height of 972 feet above the level of the sea, and has a surface of 950 square miles.

Lake *Cármén*, in Mojos; lakes *Uberaba*, *Gaiba*, *Mandioré* and others, in Chiquitos; lake *Copaisa*, which abounds with salt, between Paria and Caran-gas; lakes *Llicca* and *Chipaya*, in the province of Lipez.

The *Jarayes*, in Santa-Cruz, at the height of 1,100 feet, and with a surface of 210 square miles.

CHAPTER XXVIII.

LIST OF THE PRESIDENTS OF BOLIVIA—ARMS AND FLAG—CHRONOLOGY OF BOLIVIA.

I here give a list of the Presidents of Bolivia.

To write the history of each one of them, would exceed the limits allotted to this work.

There is one characteristic, however, which is common to all of them: the revolutions headed by commanders, more or less fortunate, that have, in not a few instances, taken forcible possession of the reins of power and caused the act to be legalized, and then resumed the practice of republicanism. Up to the present day, after such a lapse of time since the independence of Bolivia, she has not been able to give to any of the different administrations that have succeeded one another that prestige and respectability which are the essential conditions of a permanent government.

SIMON BOLIVAR.

The first President, was the liberator of Bolivia, who governed during his short residence in that country. On leaving for Colombia, he left the presidency in the hands of the *Gran Mariscal de Ayacucho*, ANTONIO JOSÉ DE SUCRE, her second liberator. He

governed from August 6th, 1825, to October 3rd, 1826.

ANTONIO JOSÉ DE SUCRE.

During his sickness, caused by a wound received the 18th of April, 1828, while trying to suffocate a military revolt which had broken out in the capital, the country was governed by a council of ministers presided by General JOSÉ MARIA PEREZ DE URDINEA. In the same year, SUCRE reported the circumstances to Congress, and at the same time presented his resignation, which was accepted.

He governed till 18th of April, 1828.

PEDRO BLANCO.

General BLANCO fell pierced by balls in the *Recoleta de Sucre*, when in the act of investing himself with the *tricolor* Presidential band.

He governed till 31st of December, 1828.

ANDRES SANTA-CRUZ.

General SANTA-CRUZ drew his sword in the conquest; and, when he was suffering a defeat, which was considered as dishonorable to the Republic, the nation took advantage of the opportunity to banish this famous politician from his country, who, for his aristocratic aspirations, was hated in Sucre. He died in France in 1865, permission to

return to Bolivia having been terminantly refused him.

He governed till February 9th, 1839.

JOSÉ MIGUEL DE VELASCO.

General VELASCO endeavored to follow a course diametrically opposite to that of his predecessor, General Santa-Cruz, and, being his opponent in ambition and political ideas, raised the statue of liberty only that it should repeatedly fall again at his feet. Deceived and mocked by the revolution, he was another victim of the misfortune that pursues the presidents of Bolivia.

He governed till 10th June, 1841.

JOSÉ BOLLIVIAN.

General BOLLIVIAN, a valiant soldier combining strength of body and mind, governed his country for a long period. He, however, fell in disfavor, and died in exile in Rio de Janeiro in 1852.

He governed till 23rd December, 1847.

MANUEL ISIDORO BELZU.

General BELZU loved democracy, detested all kinds of aristocratic pretensions, and had to suffocate more than forty revolutions. After being a long time in Europe, he returned to his country, and was

barbarously assassinated in the government palace of La Paz in 1865.

He governed from 3rd January, 1848, to 15th August, 1855.

JORJE CORDOVA.

The goodness and mildness of General CORDOVA, stepson of General Belzu, occasioned his downfall, together with all the partisans of Belzu. The revolution of 23rd October, 1864, in which he was cruelly assassinated, forms, perhaps, the most bloody page of the history of Bolivia.

He governed till 8th September, 1857.

JOSÉ MARIA LINARES.

Doctor LINARES, with all his talent and firmness of character, could not maintain himself in the Presidency with his 4,000 soldiers, and died in exile in Valparaiso (Chile) in 1861.

He governed till 14th January 1861.

JOSÉ MARIA ACHA.

General ACHA, notwithstanding his principles of tolerance, his respect of the constitution and political conciliation, was attacked and robbed of the command by a revolution, almost at the same time that he said the last word of his speech accepting the Presidency.

He died in Cochabamba in 1868.

Governed till 28th December, 1864.

MARIANO MELGAREJO.

General MELGAREJO governed Bolivia during six years. He maintained his position with great difficulty until the 15th of January, 1871, when he fell from power, leaving the government in the hands of the revolution headed by Colonel MORALES.

The administration of MELGAREJO gave very notable proofs of its sincere love for the cause of America. In the Spanish war with the Pacific republics, it was the first to take its place among their defenders.

To history pertains the duty of giving an impartial judgment upon this extremely valiant and unfortunate commander.

A victim of ingratitude and cowardice, he fell assassinated at the hands of his son-in-law, José Sanchez, in Lima (Perú), the 22nd of November, 1871.

AGUSTIN MORALES.

The civic virtues of General MORALES, his valor and manifest patriotism, gained him the title of *general*, which was accorded to him by the National Assembly shortly after his assuming the reins of government on the 15th of January, 1871.

In 1873 his government was overthrown by revolution, and since then there have been several more revolutionary changes of government, but the author cannot specify them for want of the necessary notes.

Arms and Flag.

The arms of the Republic of Bolivia are composed of a shield adorned on the sides by flags with flag-staffs, cannons, lances, muskets with bayonets, and a battle-axe upon which is hoisted the liberty-cap. In the centre is the sun of liberty and the mountain of Potosí, which represents the *Mineral Kingdom*; there is a Llama, which symbolizes the *Animal Kingdom*; a sheaf of wheat, which represents the *Vegetable Kingdom*; and nine stars, representing the number of departments into which the Republic is divided.

The flag of Bolivia is tricolor: *Red, Yellow and Green*. It is composed of three horizontal bars; in the middle is placed the yellow, and the green and red at the sides.

Chronology of Bolivia.

Foundation of Chuquisaca by Pedro de Anzures in.....	1529
“ Potosí by Villaroel in.....	1545
Discovery of the rich mines of Potosí by Diego Gualca in.....	1545
Foundation of La Paz by Alfonso de Mendoza in.....	1548
Installation of the Court of Appeal of Charcas in.....	1559
Foundation of the San Cristóval Seminary of Sucre in.....	1595
“ Santa-Cruz by Chaves in.....	1549
“ the Monastery <i>de los Remedios</i> of Sucre in.....	1567
“ the Bishopric of Charcas in.....	1552
“ Cochabamba by Jerónimo de Osorio in.....	1572
“ the Bishoprics of La Paz and Santa-Cruz in.....	1605
“ the Bishopric of the Plata in.....	1609
“ the University of San Francisco Javier at Sucre in	1623
“ the Monastery of the Carmelitas Descalzas at Sucre in.....	1665
Expulsion of the Jesuits in.....	1767

Insurrection of Tupac-Amaru in.....	1780
Foundation of the Female College of Sucre in.....	1787
“ the Oratory of San Felipe Neri in Sucre in.....	1795
Installation of the <i>Junta Tuitiva</i> (Defence Committee) in La Paz, 24th July.....	1809
Death of the patriots Murillo, Rodriguez, Jaen, Lanza, Sagarnaga, Catácora, Jimenez, Güemes and Bueno in.....	1809
Siege of the city of Sucre by Padilla in.....	1816
Battle of Junin, August 6.....	1824
“ Ayacucho, December 9.....	1824
Establishment of the first Assembly which declared the Inde- pendence of Bolivia in.....	1825
Publication of the first newspaper <i>El Condor</i> in	1826
Foundation of the Bishopric of Cochabamba in.....	1848
Discovery of the Caracoles mines in.....	1870

CHAPTER XXIX.

COMMERCE OF BOLIVIA — AGRICULTURE — ROADS — PRINCIPAL VIAS OF NAVIGATION.

The exterior commerce of Bolivia, is reduced, almost exclusively, to the importation of foreign goods by way of *Arica* and *Cobija*. The exports of Bolivia are very small, and consist in money or coined silver, Peruvian bark, copper, tin, flour, hides, wools, soaps, sarsaparilla, and other manufactured articles, such as blankets, shoes and earthen crockery. These small exportations do not compete with the large value of the importations, the difference in equality causing the debilitation of the

country's resources. From the Argentine Republic are introduced, also, horses, mules, donkeys and cattle.

The *interior commerce* is more active, and consists in the reciprocal exchange of thousands of artificial or natural products, fruits, grain, vegetables, stock, and works of art, with those that other populations produce, thus acquiring what is necessary to satisfy their necessities. The total product of the interior commerce, calculated in former years, was 30,655,292 dollars, and as the interior activity of trade has not diminished, that amount, at least, should still be realized.

Of the 159,654 square miles which is the surface of Bolivia, and although exaggerated calculations have been made, because of the nature of its territory, *senor Dalence* has demonstrated that 106,437 square miles of said surface is susceptible of being tilled. Even reducing this number to 76,092 square miles in extension, as its fertile portion, and each mile being able to maintain 1,666 persons, he has also demonstrated that Bolivia can sustain a population of 126,820,000 souls with her agricultural products only. The fertility of the soil is so great and rapid in the valleys and all the east of Bolivia, that there is no point of comparison with other lands. Some places, although they are devoted to the region of perpetual snow produce, notwithstanding, potatoes, quinoa, barley, pasture and even garden plants, as does the table-land of Oruro which is at a height of

13,272 feet above the the level of the sea, and which equals the highest peaks of the Pyrenees where there is not a sign of vegetation.

Agriculture, which in itself alone could give to Bolivia a great superiority, in her products, over many of the States of both Europe and America, that could enrich her by supplying all the wants of her sea-coast, is found also in its infancy and primitive routine. Sometimes the government has created agricultural schools, in order to better this industry ; but, on account of their bad organization, and for other defects, they have always been obliged to close them without having accomplished anything. There are few places on the globe that have such a fertility and genial climate as Bolivia, and, notwithstanding, her productions, when in greatest abundance, hardly supply the interior commerce and a little of the coast.

The public roads are so bad in Bolivia, that, with a very few exceptions, they can be said to be impassable. The lack of easy means of communication, makes the interior and exterior trade of the republic difficult, tedious and costly.

It is now some time since they opened a waggon road from the city of *Cochabamba* to the canton of *Araní*, a distance of forty-nine miles, and which passes through the villages of *Tarata*, *Victoria* and *Punata*.

The most travelled, and principal roads, are : from *Cobija* to *Potosí*, *Sucre*, *Tarija* and *Salta* ; from *La*

Paz to Oruro, Cochabamba, and Santa Cruz, and that from La Paz to Tacna.

The navigation of the rivers of Bolivia is not now a problem the realization of which offers serious difficulties, except the invincible obstacle of civil war which exhausts both men and money, and which always absorbs the attention of the government. Many explorations directed upon all the rivers of Bolivia, have confirmed the opinion of an easy navigation of the *Pilcomayo*, which offers no other serious difficulty than that of the *Salta de Guarapetendi* to afford immense advantages to *Potosí, Sucre, Tarija* and their provinces. The *Madera, Paraguay, Otiques* and other rivers, are also navigable.

Two principal vias of navigation open the doors of commerce to the exterior : that of the *Pilcomayo* which goes by the *Plata* to the Southern Atlantic, and that of the *Mamoré* and *Beni* which form the *Madera* and by the *Amazonas* lead to the Northern Atlantic. After regulating some small international treaty difficulties with Brazil and Perú, and peace consolidated in the interior, there will in a short time be two grand vias for the future prosperity of Bolivia.

The navigation of the *Mamoré* is rendered very easy by its union with the *Catato*, which goes to *Cochabamba*, after avoiding, by some means, the *Abapó*, cataract and the *Cachuelas*. The *Mamoré*, united with the *Guaporé* or *Itenes* and the *Beni*, forms the *Madera* which is the principal arm of the Ama-

zonas, and this navigation would cause the aggrandizement of the departments of *Beni*, *Santa Cruz*, and *Cochabamba*.

The navigation of the *Desaguadero* would produce, also, great advantages to the provinces of *Omasuyos*, *Munecas* and *Larejaca*, and this river could also be united with the *Pilcomayo*.

By the treaty of commerce and navigation celebrated in Lima on May 10th, 1865, by the plenipotentiaries of Bolivia, Perú, Chile, United States of Colombia, Venezuela, Ecuador, and San Salvador, the rivers and ports of these nations are open to reciprocal commerce between them. By a similar treaty celebrated with Brazil the 27th of March, 1867, the rivers of the Empire and those of Bolivia that, running through her territory empty into the Atlantic, are open to the commerce of Bolivia, as likewise her bays and lakes on the frontier. Bolivia has given, consequently, the last step, and has surmounted the political difficulties to her aggrandizement, and it now remains for her sons and her government to realize this gigantic work of her future.

CHAPTER XXX.

BOLIVIAN NATIONAL NAVIGATION COMPANY—COCHABAMBA 20 DAYS FROM EUROPE, AND LA PAZ ONLY 25.

Colonel George B. Church, in November, 1867, celebrated in New York a preliminary contract of navigation of the Bolivian rivers flowing into the *Madera*. This contract, adjusted by the diplomatic agent of Bolivia, accredited in Brazil, was sanctioned in La Paz the 27th of August, 1868.

The Bolivian National Company, as it is called, obliges itself not only to navigate the rivers of Bolivia, but also to remedy the passage of the rapids, denominated *cachuelas*, that are met with in the *Madera* and *Mamoré*. But, as these rapids are found situated in the Brazilian territory, it was necessary to obtain from the imperial government a concession to construct a railroad on the right margin of the *Madera*, the cost of which would reach the sum of four million dollars. This concession was obtained in Rio de Janeiro the 20th of April of the same year, with a privilege of fifty years.

In order to accomplish this enterprise, Mr. Church asked the Bolivian government to lend its name and credit to the *National Navigation Company*, with the object of raising in Europe a loan of two millions of pounds sterling, applicable to the fomenting of the

navigation enterprise, the construction of the railroad to avoid the rapids, and destinate seventeen per cent. of this loan towards paying the nation's interior debt, and in that way regulate the public finances.

The amortization of this capital and interest were to be paid with the product of the custom-house duties collected upon the Bolivian rivers, and by the nett products of the navigation company. These basis proposed by Colonel Church were approved on the 22d of November, 1869, and ratified by Congress the 11th of September, 1870.

The American genius of Mr. Church took new impulse from the concessions obtained, and he went immediately to the mercantile emporiums of Europe and America, and organized the *Bolivian National Navigation Company* under the auspices of a brilliant concession granted by the United States Congress, which for the first time conferred it for such an object to an individual enterprise.

In view of all these facts, I have no doubt that this indefatigable and bold enterprise of such a gigantic work will conquer all obstacles, and that through him the rich population of the East, united with the rest of the population by easy communications, will create an inexhaustible source of prosperity and riches for Bolivia.

When the navigation is regulated, this enterprise will place Cochabamba within twenty days of Europe, and La Paz only twenty-five days.

CHAPTER XXXI.

COMMERCE AND PRODUCTIONS OF THE MAMORÉ VALLEY — MANNER OF EXPORTING THE CASCARILLA BARK — VIAS OF IMPORT AND EXPORT — FREIGHTS—PRICES OF PRODUCTIONS IN BENI.

In the country bordering on the ancient Jesuit missions, not only of both margins of the *Mamoré*, but also on the *Itonama* and *Machupo*, there still remain some herds of cattle, although in small numbers, because the speculators, without any consideration whatever, have in a great measure destroyed a source of riches that might have been permanent.

It is from those remains of an ancient stock which with some care on the part of the Bolivian government, in the immense pastures of the department of *Beni*, should have augmented considerably, that to-day are taken the cargoes of hides and tallow for the canoes that from *Trinidad* and *Exaltacion* go down the *Madera* and *Amazonas* to *Serpa*.

To show that the riches in stray cattle in the *Beni* country has diminished at a quick pace, I will only note that ten years ago in *Exaltacion*, *Santa Ana* and *Trinidad*, a fat ox was bought for one dollar; to-day it costs \$4.80.

In old times they only made use of the hide and tallow, despising the meat, which was left for the

crows ; but to-day the misery, in some missions, has arrived at such an extreme that the Indians even eat a specie of large grub which they find in the damp ground.

Anciently, the game, principally deer, was exceedingly abundant even in the proximity of the missions ; but in consequence of a systematic and continual persecution on the part of the Indians, instigated by the buyers of skins, those animals have disappeared completely from around the missions, and are now only found in the more distant localities.

While they destroyed in that manner the riches which Nature offered almost without any work whatever, on the other hand no advance was made in agriculture ; on the contrary, as soon as the patriarchal system which reigned in the Jesuits' time, and in the few years following their expulsion, was abandoned, the Indians hardly sowed enough for their sustenance, and the only articles of exportation to *Santa-Cruz* now are the wild cacao of *Mamoré*, a little tobacco and cotton knittings (*macanas*), which are still manufactured on a small scale in some populations.

The active example of the priests, the pomp of the religious ceremonies, a strict severity and an unequalled tact in the art of understanding and knowing how to guide the spirit of the natives, were the means employed to make the missions prosperous ; but, as soon as the difficult task was confided to unskilful hands, as it is to-day, and the

infantile spirit of the Indians came in direct contact with the corruption of the speculators, the consequences could not be other than the saddest.

The native (Indian) population of *Beni*, distributed in fifteen settlements or missions, will not number to-day more than 80,000 souls, and diminishes from day to day in consequence of the misery, both moral and physical, in which they exist.

Unfortunately, and in consequence of the abuses of bad subjugation administrations, there has been created in the spirit of the Indians a profound antipathy towards the white race, which perhaps is the greatest obstacle to progress in that region. If it were not so, the cultivation of cotton, tobacco and sugar cane, which now is only done on a small scale, although the soil and climate could not be more appropriate, and the culture and utilization of the cacao groves, would offer as many more branches of lucrative industry.

The introduction of knitting and weaving machines (instead of the primitive instruments with which the Indians now work) would be of an immense advantage, if the admirable work they execute is taken into consideration. It is almost sure that in that manner, exercising the natural gift which that race has for all kinds of knitting, this branch of industry would take greater proportions, and that the missions to-day in a declining state would recover the active character which, without doubt, they had in time of the missionaries.

An important article of exportation, that does not really belong to the country of the department of *Beni*, but to the forests at the headwaters of the *Beni*, is the cascarilla bark.

In fact, the true *callisaya*, the bark of which contains the greatest proportion of the precious *alcaloide*, is only found on the brow of the high cordillera at an elevation of from four to eight thousand feet above the level of the sea.

Previously, the cascarilla was generally exported from *La Paz*, *Tacna* and *Arica*, and the Bolivian government, in order to better fiscalize and monopolize that important branch of commerce, has established a specie of bank or deposit in *La Paz*.

But in late days experiments on a larger scale here have been made, with a view to (instead of carrying the bark on the Indian's back and climbing the impassible paths of the cordillera) bring down the loads of bark, from where it is cut, by the river *Beni* to the *Madera*, and from thence to the port of *Parà*, on the Atlantic.

The advantages of this second via over the first are evident: the transport is by water, avoiding, at the same time, the climbing of the mountains.

But the entirely unknown region of the course of the *Beni*, the savage tribes that inhabit its margins, and the rapids, has caused the cascarilla that has so far been sent to *Parà* to follow a more complicated road. It comes on rafts through the rapid current and rapids of Upper *Beni* to the *Reyes* Mission, and

from there by land in carts drawn by oxen to the *Santa Ana* Mission in *Mamoré*; from this place, it again goes in canoes by the *Mamoré* and *Madera* to the *Amazonas* and *Pará* (Brazil).

With all these obstacles, difficulties and transshipments, the freight by that via is cheaper than by that of the Pacific, as will be seen from the following freight charges which I obtained from reliable persons in Bolivia:

Freight of a cargo of quina (250 lbs.) from Beni to Tacna.....	\$40 00
" " " " " Santa Ana...	3 20
" " " " " Santa Ana to Pará...	4 80
	\$8 00

The difference is still more notable if it is considered that the final destination of the cascarilla is a European port, and that the freight from a Pacific port is higher than from an Atlantic port.

The importance of the actual exportation from the department of *Beni*, by the via of the *Mamoré* and *Madera*, is calculated in an approximate manner by the number and tonnage of the canoes that go down, in this wise: 50 canoes of from 300 to 400 arrobes tonnage (7,500 to 10,000 lbs.) medium rate, loaded with hides and tallow, make a total of 2,000 arrobes (50,000 lbs.) exportation.

The importation effected by the same crafts is, as regards weight, equal to the exportation; but in value is much superior, as it is almost totally composed of manufactured European goods.

As there are now but few traders who wish to risk their lives and fortunes in passing the rapids, and with a crew of Indians that at different times have given proofs of the hatred which they conserve against the whites, by assassinating their masters, there is no concurrence, and the prices of the merchandise that comes up the *Madera* remain as high as those that are brought up by way of the Pacific.

In order to explain this fact so contradictory, in view of the difficulties encountered in the passage of the Cordillera and the passage on the backs of animals, in comparison with the via fluvial, although embarrassed by the rapids, I will note that in all countries any innovation or change in the vias of communication meet with difficulties on the part of those whose existence depend upon the continuation of the ancient system.

In view of all these considerations, the actual commerce of the *Madera*, which, as already demonstrated, to-day barely extends to *Trinidad*, and very rarely to *Santa Cruz de la Sierra*, as soon as a via of communication is established across the rapids, would be ten times more; but, in the meantime, it is indispensable that the Bolivian government construct a waggon road from *Vinchuta* to *Cochabamba*, and another from *Trinidad* or *Cuatro-Ojos* to *Santa Cruz*.

PRICES OF SOME OF THE PRODUCTS IN BENI :

25 lbs. of cacao.....	\$ 1 60
25 " coffee.....	1 60
25 " cotton in the seed.....	1 60
25 " tobacco.....	\$2 40 to 3 20
25 " sugar.....	1 60
25 " Yucca flour.....	40
25 " chestnuts.....	40
25 " charqui (dried fresh meat).....	1 20
25 " tamarinds.....	60
A cow's hide.....	60
Two ounces of <i>urucú</i> (a plant) in paste.....	80
1,000 cigars of best tobacco.....	\$4 00 to 4 80
A pitcher of cider (<i>chicha</i>).....	80
A bottle of chestnut-oil.....	80
25 lbs. of corn.....	30c to 40
25 " hog's lard.....	1 20
A pound of butter.....	30
25 lbs. of cheese.....	1 20
A lynx skin.....	1 60
A deer skin.....	60
25 lbs. of tallow.....	1 60
25 " sheep's wool.....	40
A yard of <i>Macana</i> (knittings).....	2 60
A pantalon pattern (of cotton).....	1 60
An ordinary cotton poncho.....	1 00
A fine poncho.....	\$4 80 to 8 00
A table cloth and a dozen napkins.....	10 40
100 lbs. Wheat Flour (in Santa Cruz) \$1 60 to	2 40
A fat ox.....	8 00
A fat cow.....	6 40
A horse.....	\$40 00 to 80 00
A mule.....	80 00
A sheep (in Santa Cruz).....	1 20

CHAPTER XXXII.

THE BOLIVIAN INDIAN—TRADITION—SUBJUGATION—
WAR OF RACES IN 1780—IMPASSIBILITY—SUPER-
STITION—SLAVERY—HUNGER AND NAKEDNESS.

There was a time, in the vast table-land of the Andes, where the three giants of the world intermingle their snowy peaks with the sky, where, circumscribed by small hills, is descried in the distance beyond the deserts some small and brilliant spots, which are the crystal waters that determine the mysterious mansion of the children of the Sun, when there lived a people from whence came Manco-Capac and Mama-Oello, founders of a vast empire.

Tradition, the gigantic monuments, as the pyramids of Egypt, testify to their power and civilization. Their laws, religion, uses and customs, liken them to the Romans, the Egyptians, and other primitive nations.

This empire, conquered by Pizarro, bent its neck so that despotism could put upon it the chains of slavery.

The aborigine of this empire, the *aimarà* Indian, was the one that most cruelly suffered the consequences of that domination.

During three centuries the Indian was forced to toil in unearthing the riches of its virgin soil, and

only thus could he satisfy the ambition of his dominators. He had no other retribution for this laborious work than the dominion of the land he cultivated with the sweat of his brow, which was hardly sufficient for his scanty subsistence and the payment of the contributions.

Placed under the barbarous oppression and vigilance of the bloodthirsty tyrants, he was the most unhappy and abject being in existence. Considered as a means of speculation, he tilled the ground for the conquerors; he served instead of a beast, transporting heavy loads on his back for great distances and over the worst mountain passes. The most insuperable tasks were accomplished by his martyrdom, and the most difficult services were allotted to the unfortunate wretch.

Not a moment of pleasure, not an instant of repose: always work, which consumes the strength; always suffering, which brutalizes the man. The cruel chastisements and the severe reprimands degraded this unfortunate to such an extent, that not even the savage would inspire as much compassion.

Being abject, without the consolation of religion, without the protection of the laws, without the enjoyment of civilization, they lost even the natural sentiments of love for their neighbor, and created within them feelings of hatred and vengeance.

Impelled by the fury of savages, in 1780, they rose implacably, boldly, and left the horrors of desolation and fright in La Paz. Terrible struggle of

rages, that lasted one hundred days, and which they sustained without other arms than their desperation, without other aid than their hatred, and without other hope than the insatiable desire to be revenged.

Their defeat brought upon them a worse condition. Submissively, like sheep, they bent their necks to the executioner's axe. The blood reddened the *acequias* (sewers) of the city; their cabins were burned; their crops destroyed.

They beheld with impassibility the execution of their chief, *Tupaccatari*, who was torn in quarters, alive, by four horses, on the heights of the city of La Paz, and tranquilly saw his wife, suspended by the neck until dead. Not a tear—not a sigh—was forced out by their terrible punishment; neither pain nor fear were manifested by them.

Because, in the superstition of their belief, they would be awakened in the grave, to return again to life to battle with greater power.

Superstition was their dominant religion, and they believed in augurs and dreams; divined by signs; read in the future; talked with the unseen geniuses; idolaters of their belief, they hung the old people, and the dying before they were yet dead. Their God was the sun. Their virgins, like the *vestals* of Rome, guarded the sacred fire. They had their calendar in the changes of the moon, or they calculated it by the stars; they were astronomers like the Arab.

More civilized than the aborigines of Asia, they

were worthy of a better fate. More docile, more intelligent and less cruel than the inhabitants of other primitive countries, they were worthy of being happy; they were worthy of being instructed in the arts; they were capable of civilization.

Their music, sweet and melodious, contains in the depths of its modulations the most tender and passionate sentiments of pain, the sufferance of the soul, the lamentations of the heart. When the *Lampona* sounds, accompanied by the gesture, the movement, the look and the drum, something sad, melancholy and gloomy is revealed by that music, melody of the heart, whose echoes penetrate to the inmost soul and touch the springs of compassion.

They take care of the flocks that supply the population with meat, shear them, spin the wool, knit the clothes, make the hats, and manufacture the sandals. Their frugal aliments, which they cultivate, are the *canagua*, the *quinua* and the *coca*, a mysterious leaf that vivifies and gives them courage for the hardest toil, for the most forced marches. They travel thirty and more miles, keeping pace with the horse; climb the most rugged mountains without fatigue, and support hunger and thirst for many days with no other nourishment than the *coca*.

They inhabit their humble huts, in the most rigid regions, at the foot of snow-capped peaks of the *Cordilleras*. Crosses in his little *totor* skiff Lake *Titicaca*, and catches an abundance of fish.

He raises the alpaca, the wool of which is so

desirable for commerce. The ass and the llama are his beasts of burden.

He searches for the *quina* in the depths of the mountains, where only the wild beasts inhabit; he cuts it, brings it out on his shoulders to the nearest settlement, and from there he transports it on his beasts for speculation and commerce.

To live, he has no need of anybody; everybody needs him. He was born in the desert to be free, and lives enslaved by the withering hand of tyranny.

All the roads that cross the interior territory, are opened by the fatigues of his personal labor. Without tools and without machinery, he has levelled mountains, covered precipices, scaled craggy mountains, where only the wild eagle inhabits.

Roads, industry, commerce, all is facilitated by the work of this indefatigable laborer; but his miserable condition is always the same.

In the 15 years' war of the independence, he shed his blood with the patriots, died with them in martyrdom, and like them had his glories.

Spain left him with his misery, his preoccupation, his servilism. She blasted his growing civilization.

The nation has changed the name of his executioner, calling him *corregidor*; but it has not taken from him the instruments of martyrdom. He has been placed under the protection of the priests and *corregidores*. Let us see if his condition has been bettered.

Sad to be told! Always the same hard service

hangs upon this being inured to labor, suffering, pain, misery and ignorance: the frequent subscriptions known by the name of *derramas*, for the reception of the authorities, the continual contribution and always in advance, the incessant services to the governor, the corregidor and the priests! There is neither a school, barracks, nor government house; but the corregidores work his fields, and occupy his houses; the priests cultivate what they call the grounds of the church, which always remains in a falling condition. Without any remuneration whatever, the Indian provides forage, eatables and combustibles for the army and authorities in transit. He and his beasts must transport the loads of baggage and ammunition. Everything belongs to the State, nothing to the Indian; everything belongs to the proprietor, nothing to the colonist.

The proprietor exercises over the Indian an absolute right of dominion. He hires him out like a beast for domestic service, under the name of *pongo*, and receives the daily wages.

Here is where the debasement of the Indian is completed. One of the lowest servants and the low-
ermost of all servants, he suffers the bad treatment of the cook, the housekeeper, the butler, the children and the master. Indefatigable in his service, he awakes at the dawn of day to attend to the cleanness of the house; sweeps together the rubbish, and carries it upon his shoulder.

The dog and the horse are also masters to be

served. In the moments of rest, he is in the constant occupation of carrying water. The night comes, and the unfortunate is sentinel at the door, waiting for the last one to return to the house. Passes the night in watching, to return to the fatigues of the day before, with the same regimen, and with his habitual good will; and the rancour, the rage, the outrages of all the individuals of the house are vented upon him. After eight days of service, he returns to his hut—to enjoy the comforts of his wife and children? Impossible! The persecution of the *alcaldes*, collecting the contribution, obliges him to make other journeys and endure other fatigues.

The Indian conquered in the XVI. century is the same as the Indian of the XIX. century. Nothing has been done by the nation, the laws nor the religion to better the condition of the Indian of Bolivia.

After the beneficent law of the Liberator Bolivar, declaring him a proprietor, some governments have also dictated measures destined to better his situation, but they have been ineffectual, because his oppressors have eluded them.

When, on crossing the desert, there is seen one of those miserable huts situated on the brow of a hill where a rivulet winds its way to the plain: when near by is heard the cheerful bleat of the sheep: when the smoke rises from the hut, and the bark of the dog is heard, and finally, the song which the little shepherd sings, it is thought, at least, to find the happiness of silence, the tranquility of ease; but, far

from that, there is only to be contemplated misery, hunger, nakedness,—the lamentings of the mother are listened to, whose son has been forced from her, and whose husband has been assassinated.

At least the savage, son of the desert, is free to dispose of the ground he walks on and to enjoy the love of his child. He returns from the chase to his cabin, with the quiver and arrow, contemplates and kisses his child sleeping on its mother's bosom, and is happy! The wild beasts that inhabit the forests have not torn away the child from the bosom of its mother. The wild beasts also fondle with their young.

The Indian can neither dispose of his labour, of the ground he cultivates, nor of the love of his child.

How sad is the condition of the poor Indian of Bolivia! More unfortunate than the outlaw, he has no home in his native country. More miserable than the beggar, he works and never tastes the fruit of his labours.

CHAPTER XXXIII.

MONUMENTS OF ANTIQUITY—THE TIAHUANACU STATUES—RUINS OF A PALACE AND TEMPLE—MORE RUINS NEAR SAMAIPATA.

I will give a brief description of the most notable monuments of antiquity. The first are those of *Tiahuanacu*. The base of a conical hillock, formed artificially, is surrounded by enormous hewn stones, which must have been brought a long distance, as none such are found in the immediate hills; the largest are from four to five metres in height. There are two porticos; the smallest, which has fallen, is nearly two and a half metres long; the other sandy monolith, which is cracked at one of its angles, is three and a half metres high. The top part is covered with very curious sculptures; in the centre, there is a figure probably representing the sun; at each side are allegorical personages turned towards the principal figure; all have wings, and carry a specie of staff in the hand, but some have human heads, crowned, and the others have the heads of griffins. On the inferior part, there is a series of symbolical signs. In the same ruins are found fragments of stone statues. The length of the head of one of these statues, from the chin to the inferior part of the ornament of the head, is three

feet and six inches; its greatest width, from the extremity of the nose to the corresponding part at the back of the head, is two feet and five inches; it is ornamented with a species of cap, of one foot and seven inches high and two feet and five inches in width. On the superior part are seen some wide and vertical battens; on the inferior, there are symbolical figures with human faces. From the eyes to the chin extend two wide battens, each one with three double circles. From the exterior part of each eye a wide semicircular batten extends downwards, which, towards the interior part, terminates in two horns. The mouth forms a transverse oval, adorned with sixteen teeth. From the inside of the lip proceed, in the form of a beard, six battens. The ear is indicated by a semicircular figure in a square, and on its anterior part there is a vertical batten with three squares that terminates in a wild beast's head. On the vertical back part of the head there are squares that form battens, and on the neck are seen many human figures. The sculpture of this head is very notable, and does not resemble anything yet discovered in other nations.

The *Tiahuanacu* monument, undoubtedly, belongs to a very remote antiquity. The rains could not have canalized the monolith columns except during the lapse of many centuries.

The constructions which I have described have the appearance of a palace. Ruins are also seen that appear to indicate a temple. The square stones,

placed horizontally, after the manner of altars, have in the centre a specie of receptacle, destined, perhaps, to receive the blood of the victims.

This circumstance has caused the belief that the hieroglyphics of *Tiahuanacu* constitute a hierarch, or sacred writing. In order that that should be the case, it would be necessary that in the same epocha in which this writing was employed there was another domestic or popular one, which has not been proved in any manner whatever. Those hieroglyphics, probably ideographical, belong to a people very different from that which, in order to perpetuate their ideas or transmit them at a distance, employed the *quipus*.

Near to *Samaipata* there are seven cavities in a mountain, having the form of doors. On the inferior part there is a large seat cut out in the rock. There are also other ruins, which probably are of some kind of baths.

CHAPTER XXXIV.

NATIONAL DRINK—MODE OF MAKING IT—NATIONAL COOKERY—CHOICE DISHES IN LA PAZ.

The eminently national drink is *chica* (cider), which has been used by the Indians since the time of their empire. The *chica* is made of corn (in Bolivia), which is deposited until it begins to sprout, and

then it receives the name of *jora* ; in this state it is ground, and then boiled in large kettles ; this decoction is afterwards left to ferment ; after fermentation, the *chica* is ready for use. In some parts of Bolivia, the operation of grinding the *jora* is substituted by chewing it ; a number of persons of both sexes are brought together, generally old women, and form a circle around the pile of corn to be benefitted ; each person masticates handsfull of corn and throws them into the kettles, in order to be afterwards passed through the other operations which I have indicated.

Although the *chica* is the drink to which the Indians and *cholos* (half-breeds) give the preference, that does not prevent them from relishing *aquadiante* (alcohol), which they drink with pleasure and by wholesale.

The *chica*, although it is not an alcoholic liquor, does not fail, if drank to excess, to produce a certain state of *torment* in mind and body.

The dish which occupies the first rank in the list of national stews is the *puchero*.

The *puchero* as made in La Paz is, in truth, a plate that, for succulence and variety, constitutes in itself a complete meal. To cook a *puchero*, according to good gastronomical regulations, there is put into a pot a quantity of *fat beef*, *bacon*, *dried fresh meat*, *cabbage*, *bannanas*, *yuccas*, *sweet potatoes*, *quinces*, *garden peas*, *rice*, *sausages* and *pigs' feet*, and for condiment *annatto* and *salt* is added ; all this, with the water necessary, is put to cook over a slow fire for four or

five hours, in order to conserve it, after which this monstrous alimental is presented on the table.

Another of the stews is the *chupé*, which, if it does not occupy the high rank of the *puchero*, is certainly just as agreeable. It is made of *potatoes* cooked in water or in milk, to which is added *chicken*, *shrimps*, *eggs*, *cheese*, *butter* and *salt*.

The *chairo* of *chuno* or potato flour, *quinua*, *geese*, *beans* and *corn* form the daily aliment of the poorer class of persons.

The national dish is the *picante*, which is relished with so much pleasure by the common people that they are seen eating it at all hours.

The *picantes* are made of *meat*, *chicken*, *pigeon*, *partridge*, *cackrel*, or of *potatoes*, but always with an abundance of *red pepper*.

To appease the fury of the red pepper, the *chicha* is made use of.

The *picantes* are sold in La Paz by *cholas*, who go up and down the streets with the pots in a large basket, which they carry on top of their heads.

CHAPTER XXXV.

PRIVATE BALLS — NATIONAL CUSTOM — INDIAN DANCES — SCARCITY OF PUBLIC AMUSEMENTS IN BOLIVIA.

At the family dances there is the custom of *obliging*, common in all the Republic, which consists in.

that the person *obliged* drinks a portion of liquor equal to that which has just been drunk by the person making the invitation, and then the last drinker has the right to *oblige* some one else; in this way, the glasses are in an uninterrupted circulation. In the soirees of first class, some European dances are danced; in the rest are danced the merry *little dances* (*bailecitos*), in some parts called *de tierra*, and which require a great deal of grace and agility. The people of La Paz are famous for this class of dance, as they are the best imitators of the Chilians, from whom it has been adopted.

In the public feasts, the Indians dance without being excited by the merriment. Even in the private reunions, in which some event is celebrated, his unexpansive character is noted. At the dances which take place in their religious solemnities, they use capricious masks and ornaments; some wear masks representing the face of some animal. The *ayarichis* wear a specie of petticoat and hat surrounded with large feathers; play the instrument called *sicu*, which consists of knots of cane, placed side by side, and the apertures of which are in the same line; the first is thicker and longer than the second, the second longer and thicker than the third, and so on with the others. The so-called *dancers* wear a stiff cap that resembles the wings of a butterfly, which are composed of a wooden frame covered with red cloth, upon which are some thin plates of silver; the cap is of the same metal. The

dancer has a strap around the waist, from which hang others whose inferior extremes are fastened to another circular strap at the ankle, and all are covered with bells. The dancer carries a short sword in the right hand, and a shield in the left. This mode of dancing is probably of a time subsequent to the Conquest. Although the dance of the Indians is not without rhythm, it has nothing either expressive or graceful.

The music, as monotonous as the dance, is not only melancholy but doleful.

The *quainos* are musical compositions in which quartettes are sung, in verses of six or eight syllables, in the same key; those of each province have a particular air that distinguishes them; the common people sing them even in the streets.

The promenades, the parties, the theatrical representations, and all those diversions which harmonize the links of society, are scarce in Bolivia.

END OF SECOND PART.

The Third Part, entitled "CHILE," will immediately follow, and will be full of details of both public and private interest.

INDEX TO SECOND PART.

CHAPTER.	PAGE.
CHAPTER I.—Discovery of "Caracoles" Silver Mines—Fossils—Principal Mines—Road from Antofagasta to Caracoles—The Author is in the mines—Drink Salt Water—Large Chilean Companies—Immense fortunes made.....	5
CHAPTER II.—Antofagasta—Population—Commercial importance—Flies and Fleas—The English Company's Monopoly—Travel over the Desert — Water Stations — Copper Mines — Salt Mountain—Peculiarities of the Desert—"War of the Elements,".....	12
CHAPTER III.—The Author Sails for Mejillones — Is carried to Cobiya by Mistake—Detestable Hotel in Cobiya—Situation of Cobiya—Population—Custom House Statistics of Imports and Exports—The Author sails again for Mejillones.....	19
CHAPTER IV.—Harbour of Mejillones—Town—Population—Whales, Porpoises and Seals—Fine Baths—Analysis of the Guano—Guano Exports.....	24
CHAPTER V.—The Landlord from Cobiya arrives—Writes for the trunks—Inauguration of the Railroad—Banquet and Ball—The Author has his pocket picked while dancing.....	28
CHAPTER VI.—The Author's trunks arrive from Cobiya—One of the trunks broken open and robbed—The landlord ordered to pay the loss—Is given eight days—The Author embarks on the steamer and is taken off by force.....	31

CHAPTER.	PAGE.
CHAPTER VII.—The Author is taken to the Captain of the Port's Office—Interview with that Officer—Is sent to Prison—Released the next morning—Cause of arrest—An infamous document—The landlord arrives from Cobija and denies everything—The Author ordered to prove his case or pay damages, and is compelled to leave one trunk in the Intendente's Office as security.	36
CHAPTER VIII.—Trouble with the Intendente—Certificate from the Steamer—The Author continues his travels.....	41
CHAPTER IX.—Religion—Race of inhabitants—Principal productions—Medicinal—Dying—Fruits—Timber—Honey Bees—Palm Trees.....	47
CHAPTER X.—The Coca—Its cultivation—Mode of Harvesting it—A Sacred Plant—Manner of using—Its virtue—The Indians..	56
CHAPTER XI.—The Yungas Coffee—Its culture—Manner of Harvesting—The virtues of Coffee—Chemical Analysis.....	59
CHAPTER XII.—The Sugar Cane—Its cultivation—Manner of Harvesting—Primitive mode of making Sugar—Grapes—Prices of native Wines.....	61
CHAPTER XIII.—Mineral Kingdom—Quotation from Dalence's Mineral History—Sad state of the Mines—Its cause—Potosi—Machinery and superior intelligence needed—Extensive Gold Mines.....	65
CHAPTER XIV.—Alphabetical List of Second Class Metals, Mineral Substances, and Precious Stones, and where to be found—Inducements to a Navigation Company.....	75
CHAPTER XV.—Animal Kingdom—Abundance of all kinds of game—Best of Fishing.....	83
CHAPTER XVI.—Form of Government—Administrative division—Heads of Departments—Population of the Republic.....	86
CHAPTER XVII.—Climate of Bolivia—Situation of its Territory—Size—Celebrated Thermal Waters or hot Springs.....	90

INDEX TO SECOND PART.

III

CHAPTER.	PAGE.
CHAPTER XVIII.—Department of Chuquisaca—Population—Capital—Provinces—Mountains—Rivers—Size—Limits—Aspect and Climate.....	94
CHAPTER XIX.—Department of La Paz de Ayacucho—Limits—Size—Population—Capital—Provinces—Mountains—Rivers—Aspect and Climate.....	97
CHAPTER XX.—Department of Cochabamba—Limits—Population—Capital—Provinces—Mountains—Rivers—Physical Aspect and Climate.....	99
CHAPTER XXI.—Department of Potosí—Limits—Population—Size—Capital—Provinces—Mountains—Rivers—Aspect and Climate.....	103
CHAPTER XXII.—Department of Santa Cruz de la Sierra—Limits—Size—Population—Capital—Provinces—Mountains—Rivers—Aspect and Climate.....	105
CHAPTER XXIII.—Department of Oruro—Limits—Size—Population—Capital—Provinces—Mountains—Rivers—Aspect and Climate.....	107
CHAPTER XXIV.—Department of Tarija—Limits—Size—Population—Capital—Provinces—Rivers—Aspect and Climate.....	109
CHAPTER XXV.—Department of Beni—Limits—Size—Population—Capital—Provinces—Mountains—Rivers—Physical Aspect and Climate.....	110
CHAPTER XXVI.—Distances between some of the Capitals—Distances to the Frontiers—Distance from La Paz to Tacna and intermediate points—Mails of Bolivia—Newspapers—Public Libraries—Army.....	113
CHAPTER XXVII.—Limits of the Republic—Highest Mountain Peaks—Mountains—High Table-land—Rivers—Coast—Lakes.....	117
CHAPTER XXVIII.—List of the Presidents of Bolivia—Arms and Flag—Chronology of Bolivia.....	126

IV

INDEX TO SECOND PART.

CHAPTER.	PAGE.
CHAPTER XXIX.—Commerce of Bolivia — Agriculture — Roads— Principal vias of Navigation.....	132
CHAPTER XXX.—Bolivian National Navigation Company — Cocha- bamba 20 days from Europe and La Paz only 25.....	137
CHAPTER XXXI.—Commerce and productions of the Mamoré Valley — Manner of exporting the Cascarilla Bark — Vias of import and export — Freights—Prices of productions in Beni.....	139
CHAPTER XXXII.—The Bolivian Indian — Tradition—Subjugation— War of Races in 1780—Impassibility—Superstition—Slavery— Hunger and Nakedness.....	146
CHAPTER XXXIII.—Monuments of Antiquity — The Tiahuanacu Statues—Ruins of a Palace and Temple—More ruins near Samaipata	154
CHAPTER XXXIV.—National Drink—Mode of making it—National Cookery—Choice Dishes in La Paz.....	156
CHAPTER XXXV.—Private Balls—National Custom—Indian Dances— Scarcity of Public Amusements in Bolivia.....	158

